J-4698-1

THE LANCET.

No. 4260. Vol. CLXVIII. LONDON, SATURDAY, APRIL 22, 1905. [Pp. 120+32.

CONTENTS.

HUNTERIAN LECTURES (Abstract of the) on the Dissemination of Mammary Carcinoma. Delivered before the Royal College of Surgeons of England on March 13th, 15th, and 17th, 1905, by W. SAMPSON HANDLEY, M.S., M.D. Lond., F.R.C.S. Eng., Hunterian Professor; Surgeon to Out-patients, Samaritan Free Hospital; "Richard Hollins" Cancer Research Scholar, the Middlesex Hospital.—Lecture III. 1047

GOULSTONIAN LECTURES on Some Considerations on the Nature of Diabetes Mellitus. Delivered before the Royal College of Physicians of London on March 16th, 21st, and 23rd, 1905, by W. CECIL BOSANQUET, M.A., M.D. Oxon., F.R.C.P. Lond., Assistant Physician to Charing Cross Hospital and to the Brompton Hospital for Consumption and Diseases of the Chest; formerly Fellow of New College, Oxford.—Lecture III. 1053

ORIGINAL ARTICLES.

Gall-stones and Cancer. By G. R. SLADE, M.A., M.D. Cantab., M.R.C.P. Lond., Pathological Assistant at the London Hospital.—(*Illustrated*) 1059

Three Cases Illustrating the Condition of the Small Intestine some years after Extensive Enterectomies. By ARTHUR E. J. BARKER, F.R.C.S. Eng., Surgeon to University College Hospital 1062

A Further Note on the Relation between Various Atmospheric Conditions and the Occurrence of Cerebral Hæmorrhage. By JAMES W. RUSSELL, M.A., M.D. Cantab., M.R.C.P. Lond., Assistant Physician to the Birmingham General Hospital 1064

Plague in Cats. By WILLIAM HUNTER, M.B., C.M. Aberd., Government Bacteriologist, Hong-Kong 1064

Suppurative Periostitis following Typhoid Fever. By WILLIAM H. BATTLE, F.R.C.S. Eng., Surgeon to St. Thomas's Hospital; and LEONARD S. DUDGEON, M.R.C.P. Lond., Superintendent of the Clinical Laboratory and Demonstrator on Clinical Pathology, St. Thomas's Hospital; Erasmus Wilson Lecturer, Royal College of Surgeons of England 1065

A Cerebro-spinal Manometer. By FRANK C. EVE, M.D. Cantab., M.R.C.P. Lond., Assistant Physician, Victoria Hospital for Children, Hull; late House Physician, Hull Royal Infirmary.—(*Illustrated*) 1067

MEDICAL SOCIETIES.

CLINICAL SOCIETY: Malarial Affections of a Joint.—Intermittent Hydrops of the Joints.—Hydronephrosis due to Moveable Kidney 1069

LIVERPOOL MEDICAL INSTITUTION: Paramyoclonus Multiplex.—Hæmorrhage due to High Arterial Tension.—Floating Kidney.—Prognosis in Pulmonary Tuberculosis 1070

FORFARSHIRE MEDICAL ASSOCIATION: Icterus Gravis or Grave Jaundice.—A Retrospect of 100 Gynæcological Laparotomies 1070

NORTH OF ENGLAND OBSTETRICAL & GYNÆCOLOGICAL SOCIETY: Removal of the Cancerous Cervix by the Abdominal Route with Pelvic Dissection 1071

LARYNGOLOGICAL SOCIETY: Exhibition of Cases and Specimens 1071

REVIEWS AND NOTICES OF BOOKS.

International Clinics. Vol. II. Fourteenth Series, 1904. Edited by A. O. J. Kelly, A.M., M.D., Philadelphia, U.S.A. 1072

The Nervous Affections of the Heart. By George Alexander Gibson, M.D., D.Sc. Edin., F.R.C.P. Edin. 1072

Transactions of the Ophthalmological Society of the United Kingdom. Vol. XXIV. 1073

Progressive Medicine: a Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. III. 1073

Atlas and Epitome of Operative Gynecology. By Dr. Oskar Schaeffer. Authorised translation edited by Professor J. Clarence Webster 1073

Midwifery for Midwives. By W. Denison Wiggins, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. 1074

A Short Practice of Gynæcology. By Henry Jellett, B.A., M.D., B.Ch., B.A.O. Dub. Second Edition 1074

A Complete Handbook of Midwifery for Midwives and Nurses. By J. K. Watson, M.D. Edin. 1074

Edinburgh Medical Journal ... 1074

Scottish Medical and Surgical Journal 1074

Birmingham Medical Review.. 1075

Annals of Ophthalmology. Edited by James Moore Ball, M.D. Vol. XIV., No. 1..... 1075

National Service Journal 1075

REPORTS AND ANALYTICAL RECORDS FROM THE LANCET LABORATORY.

Sterilisol 1075

Gluten Bread 1075

Spanish Brandy 1075

(1) Soluble Infant's Food (Theinhardt); and (2) Hygiama (Theinhardt) 1076

Sylvia Soap 1076

NEW INVENTIONS.

The "Locket," Poison Bottle... 1076

LEADING ARTICLES.

INDUSTRIAL ALCOHOL 1077

A CONVALESCENT HOMES ASSOCIATION 1077

THE HOUSING PROBLEM AT LIVERPOOL 1078

ANNOTATIONS.

Gall-stones and Cancer 1079

Infantile Mortality 1080

Oil in Tobacco 1080

The Dangers of the Streets..... 1080

The Discovery of the Discovered 1081

The Queen's Jubilee Hospital.. 1081

Radio-activity as a Factor in Hydro-therapy 1082

Organs of Digestion in Pitcher Plants 1082

Laparotomy in a Case of Angio-neurotic Œdema of the Intestine 1083

Motor Maniacs..... 1083

The Central Public-House Trust Association 1083

The Medical Man, the Coroner, and the Pathologist 1084

The Visit of British Physicians and Surgeons to Paris 1084

A Recognition of Good Work... 1084

MEDICINE: ITS PRACTICE AND ITS PUBLIC RELATIONS.

Chapter VIII.

The Naval and Military Medical Services.—(*Continued*) ... 1089

VITAL STATISTICS:

Health of English Towns ... 1093

Health of Scotch Towns 1094

Health of Dublin 1094

SPECIAL ARTICLES.

Some Constituents of Violet Leaves..... 1095

Sixty-sixth Annual Report of the Registrar-General for 1903.—II..... 1096

Royal College of Surgeons of England..... 1097

Alcohol and Physical Deterioration 1099

The Conservative Treatment of Tuberculous Arthritis.—(*Illustrated*) 1031

Royal College of Physicians of London: Election of President 1092

Medicine and the Law 1093

The Services..... 1094

Birmingham 1096

Liverpool 1096

Wales and Western Counties Notes 1097

Ireland 1098

Paris 1098

Vienna 1099

Notes from India 1100

Australia 1101

LOOKING BACK.

(From THE LANCET, Saturday, April 21, 1827) 1076

CORRESPONDENCE.

Disappearance of an Apparently Malignant Tumour of the Throat (Dr. Theodore Zangger)..... 1095

Puerperal Sepsis and the Curette (Dr. A. Knyvett Gordon) 1095

The Medical Inspection of Schools 1095

A Repudiation (Mr. Chisholm Williams) 1107

Manners in the London Streets 1108

OBITUARY.

Thomas Morton, M.D. Lond., M.R.C.S. Eng., L.S.A. 1101

Edwin Thomas Truman, M.R.C.S. Eng. 1102

David Smith, M.D. St. And., M.R.C.S. Eng. 1102

David Steele Moon, L.R.C.P., L.R.C.S. Edin. 1102

Deaths of Eminent Foreign Medical Men..... 1102

MEDICAL NEWS.

Society for Relief of Widows and Orphans of Medical Men 1071

Foreign University Intelligence 1076

Pass-lists of the University of Edinburgh and the London School of Tropical Medicine (University of London) 1102

Donations and Bequests 1103

Ambidexterity from the Surgeon's Point of View..... 1103

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics..... 1103

House of Commons 1103

Registration of Nurses: Evidence before Select Committee..... 1104

Books, &c., received 1105

Appointments 1106

Vacancies 1105

Births, Marriages, and Deaths.. 1107

Notes, Short Comments, and Answers to Correspondents... 1107

Medical Diary 1109

FOR INDEX TO ADVERTISEMENTS SEE PAGES 2 & 4.

INDEX.

MEDICAL AND OTHER BOOKS AND PUBLICATIONS.

COVER.

PAGE

ADLARD & SON:—
Shaw..... Essays on Insanity 1

ARNOLD:—
Hutchison .. Diseases of Children.... 1

BAILLIERE TINDALL & COX:—
Auto-Biography of F. J. Gant 1
Clarke ..... Refraction of the Eye .. 1
Jellett ..... Midwifery 1
Lake ..... Diseases of the Ear 1
Manningham-
Jones..... Diseases of Women 1

BALE SONS & DANIELSSON:—
Hutchinson . Facial Neuralgia 1
Worth ..... Squint..... 1

GLAISHER:—
Owen ..... X-Rays 1
Horsehell .. Constipation..... 1
Wright..... Treatment of Hæmorrhoids, &c. 1

LAMONT, CORLISS & CO.:—
Marchand .. Therapeutical Applications of Hydrosote .. 1

LEWIS:—
Campbell, H. Flushing, &c. 1
" Headache 1
" The Rest Cure 1
Martindale & Westcott .. Extra Pharmacopœia .. 1
Roth ..... Curvature of the Spine 1

LONGMANS, GREEN & CO.:—
Dockrell .... Atlas of Dermatology .. 1

MACMILLAN & CO.:—
Tubby & Jones .... Surgery of Paralysis.... 1

PENTLAND, Y. J.:—
Tasmania & Wilson..... Manual of Surgery 1

SAUNDERS & CO.:—
Saunders' Newest Books 1

MEDICAL LIBRARIES, &c.:—
Davidson—Sight-Testing for the G.P. 1
Lewin's Circulating Library 1

PAGE

BAILLIERE, TINDALL & COX:—
Bigg ..... Constipation 10
Owen..... Cleft-Palate, &c..... 9

BALE, SONS & DANIELSSON:—
Moullin .... Inflammation of the Appendix 6
" ..... Ulcer of the Stomach .. 6
Worth ..... Squint..... 6

CASSELL & CO.:—
Bland-Sutton Tumours 6
Bousquet .. Serums, Vaccines, and Toxines 6
Bruce ..... Materia Medica, &c..... 6
Burton-
Fanning .. Pulmonary Tuberculosis 6
Gould ..... Surgical Diagnosis 6
Herman .... Difficult Labour 6
" .... First Lines in Midwifery 6
" .... Diseases of Women 6
Hutchison
& Rainy .. Clinical Methods 6
Manson, Sir P. Tropical Diseases 6
Morris, H. .. Surgical Diseases of the Kidney and Ureter 6
Morris, M. .. Diseases of the Skin .. 6
Owen..... Surgical Diseases of Children 6
Savage..... Insanity, &c..... 6
Treves, Sir F. Operative Surgery 6
" Surgical Operations 6
" Surgical Anatomy..... 6
" Intestinal Obstruction.. 6
" System of Surgery..... 6
Whitelegge.. Hygiene &c. 6
Yeo ..... Mineral Springs, &c. 6
" ..... Food in Health, &c. 6
" ..... Medical Treatment 6

CHURCHILL, J. & A.:—
Beach ..... Treatment of Mentally Feeble Children 3
Berry, J. .... Surgical Diagnosis 3
Bewley ..... Surgical Pathology 3
Cripps ..... Ovariotomy, &c. 12
Fenwick,
E. H. .... Operative, &c., Tumours 3
" .... Urinary Diseases..... 3
" .... Electric Cystoscopy 3
" .... Ulceration of the Bladder 3
" .... Tumours of the Bladder 3
" .... Clinical Cystoscopy 3
" .... Ureteric Mensuscopy .. 3

PAGE

CHURCHILL—(Continued).
Haig ..... Diet and Food 3
" ..... Uric Acid 3
Harrison..... Stone, Prostate, &c 10
Jellett ..... Midwifery 3
" ..... Gynæcology 5
Lazarus-
Barlow .... General Pathology 3
" .... Pathological Anatomy.. 3
Maylard .... Abdominal Pain 5
Nettleship &
Splaer .... Diseases of the Eye 3
Savill ..... Clinical Medicine 3
Schofield .... Unconscious Therapeution 3
" .... The Force of Mind, &c. 3
Smith, F. J.... Medical Jurisprudence 3

KEGAN PAUL & CO.:—
Taylor ..... Diseases of the Eye 10

LEWIS:—
Higgens .... Ophthalmic Practice .. 9
Lewis ..... Diseases of Women 9
" ..... Cancer of the Uterus .. 9
Martindale &
Wamcott .. Extra Pharmacopœia .. 9
Moullin .... Enlargement of the Prostate 6
" .... Inflammation of the Bladder 6
Powell, Sir
R. D..... Treatment of Diseases, &c., of the Heart 9
" ..... Diseases of the Lungs &c. 9
Stocking .... On Periodical Headache or Migraine 9
" .... On Epilepsy 9
" .... On Movable Kidney 9
" .... Treatment of Diseases of the Nervous System .. 9
" .... Diseases of the Brain and Spinal Cord 9
Weakes .... On Deafness, &c. 9

LONGMANS, GREEN & CO.:—
Ashby &
Wright.... Diseases of Children..... 7
Cragin ..... Manual of Pathology .. 7
Dakin ..... Handbook of Midwifery 7
Dickinson .. Renal and Urinary Affections 7
Gray ..... Anatomy 7
Halliburton.. Chemical Physiology .. 7
Quain ..... Elements of Anatomy .. 7

PAGE

LONGMANS—(Continued).
Scanlon..... Essentials of Histology 7
Smale &
Colyer .... Diseases of the Teeth .. 7

MACMILLAN & CO.:—
Allbutt ..... Historical Relations of Medicine and Surgery 10
Lockwood .. The Surgery of Appendicitis 10

MEDICAL PUBLISHING CO.:—
Lane ..... Chronic Constipation .. 8

PENTLAND, Y. J.:—
Lockwood .. Aseptic Surgery..... 12
" .. Cure of Hernia, &c. 12

REBMAN:—
Cheves..... Light Energy 9
Freund ..... Radiotherapy 9
Health and Disease in Relation to Marriage 9
Jennings .... Manual of Plague 9
Woodruff .. Tropical Light..... 9

RENSHAW:—
Wood ..... Application of Trusses 8

SAUNDERS & CO.:—
Heab ..... Operative Ophthalmology 5
Kelly &
Hurdon .. Vermiform Appendix .. 5
Medical Hand-Almanac 5
Saunders' Year-book for 1905 5
Stengel .... Diseases of the Blood .. 5

SMITH, ELDER & CO.:—
Eastley .... Orthopædic Surgery.... 10
" .... Gastric Ulcers..... 10
" .... Compound Fractures 10
Lawson .... Diseases and Injuries of the Eye 10
Tirard ..... Albuminuria, &c. 9

WILLIAMS & NORGATE:—
Stephens & Christophers Practical Study of Malaria 10

MEDICAL LIBRARIES, &c.:—
Behnke—Stammering 9

OFFICIAL AND GENERAL ANNOUNCEMENTS.

APPOINTMENTS VACANT:—
Bristol General Hospital 78
Chelsea Hospital for Women, Fulham-road 77
Chesterfield, &c., Hospital 77
County Branch Hospital, Northwood 77
County of London 78
Devon County Asylums, Exminster .. 78
Devonshire Hospital, Buxton 77
Fairlight Hall Convalescent Home, Hastings 78
Gartloch Asylum, near Glasgow 77
Hospital for Sick Children, Great Ormond street 78
Kent and Canterbury Hospital 77
Liverpool Infirmary for Children 77
London Fever Hos., Liverpool-road.. 77
Manchester Royal Infirmary 77
Margaret-street Hospital for Consumption, &c. 78
Mount Vernon Hospital, Hampstead.. 77
National Hospital for the Paralysed, &c., Queen square 78
Newcastle-upon-Tyne Dispensary..... 77
Newport and Monmouthshire Hospital 77
North Staffordshire Infirmary, Hartshill 78
Nottingham General Hospital 78
R. D. C. of Auckland..... 78
Samaritan Free Hospital for Women 77
Sheffield Royal Hospital 77
Society of Apothecaries of London.... 77
St. Andrew's Hospital for Mental Diseases, Northampton 78
St. Mary's Hospital for Sick Children, Paisnow 30
Tottenham Hospital 77
University of London 78
Victoria Hospital for Children, Chelsea..... 78
Walker, Birmingham 78
Wandsworth Union Infirmary 77
Warwick County Asylum 78

ASSISTANCIES, MEDICAL 82

ASYLUMS, HOMES, &c.:—
Abervstwith, the Biarritz of Wales .. 70
Ashwood House, Kingswinford 66
Barnwood House Hospital..... 66
Bishopstone House, Bedford 67
Bodorgan Manor, Bournemouth 74
Buntingford House Retreat, Herts .. 73
Chamberwell House, Peckham-road .. 66
Clarence Lodge, Clapham-park 74
Coppice, The, Nottingham..... 69
Convocation House, Bove 74
Cotswold Sanatorium 71
Crooksbury Sanatorium, Surrey..... 73
Dalrymple Home, Rickmansworth 66
Dartmoor Sanatorium 72
David Lewis Colony, Alderley Edge.. 70
Denton Jones' Sanatorium, Parkstone 74
Doctor, Sharnbrook 74

ASYLUMS—(Continued).
Dorchester Asylum 66
Dr. Rambourne 74
Dr. Rashleigh's Sanatorium, Dartmoor 73
Dunstone Park Sanatorium, Paignton 74
East Anglian Sanatorium, Nayland .. 73
Ecclesfield, Ashford 61
Fairford Retreat, Gloucestershire..... 78
Fairlight, Barnet 66
Flower House, Catford 69
Fraser, Ringwood 74
Grove House, Church Stretton 69
Grove, The, Catton, Norwich 66
Hadley Open Air Sanatorium, Barnet 72
Haydock Lodge, Newton-le-Willows 71
Heath Resort Enquiry Office, Strand 74
High Shot House, Twickenham 69
Hitch, Mrs., Hellingdon 66
Home "sanatorium, Bournemouth 74
Inverath Lodge Retreat, Collasburgh 70
Lady Superintendent, Brighton 74
Lady Superintendent, Streatham 74
Lawson, Nantwich-on-Dee, Hanchery 72
Leach, Clapham-park 78
London Open-Air Sanatorium, Wokingham 73
Longcroft, shoreham 61
Lufkar Sanatorium, Portbury 74
Maternity Home, New King's-road.... 74
Melbourne House, Leicester..... 69
Meadip Hills Sanatorium, Wells 73
Middleton Hall, Co Durham 73
Mont House, Tamworth 69
Moorcote Open-Air Sanatorium, Eversley 73
Nordrach in Wales 73
Nordrach-upon-Mendip Sanatorium.. 71
Northlands Retreat, Wandsworth 74
Northumberland House, Finsbury-park 73
Northwoods House, Winterbourne .. 70
Norwood Sanatorium 74
No. 604 L.C. street..... 74
Ochil Hills Sanatorium, Kinross-shire 73
Overdale, Whitefield..... 69
Palmswick Sanatorium..... 73
Park House Convalescent, &c., Home, Waterloo..... 74
Plas-yn-Dinas, Merionethshire 71
Plympton House, South Devon 69
Rea rever Open-Air Sanatorium, Warwickshire 73
Shaftesbury House, Formby 70
Springfield House Private Asylum, Bedford 66
St. Andrew's Hospital, Northampton 69
St. Luke's Hospital, E.C. 66
Stocker, Craven-street 74
Stone House, Canterbury 74
Stretton House, Church Stretton 69
Sunshine, Guy's Hospital 74
Thundercliffe Grange, nr. Rotherham 73
Tower House, Leicester 69

ASYLUMS—(Continued).
Turner, St. Leonard's-on-Sea 74
Vale of Clwyd Sanatorium..... 71
Warnsford Asylum, Oxford 69
West Malling-place, Kent 70
Whitmead Hill Sanatorium, Faraham 74
Wiesbaden 75
Wonford House, Exeter 69
Wye House, Buxton 69
Wykes House, Islewerth 69
Yarrow Convalescent Home, Broadstairs..... 70

BATHS:—
Badenweiler 75
Bad Homburg 75
Bad Nauheim 75
Langenschwalbach..... 75
Marloch Bath 75
Moffatt Hydropathic 75
Smedley's, Matlock 73

COMPANIONS 82

FINANCIAL &c. 82

HOMES, &c., WANTED 78

HOTELS:—
Bad Nauheim—Park Hotel 61
Carlton Court Hotel, New Milton 61
Ilfracombe Hotel 61
Kurhotel de Russie 61
Montreux Hotel and Chateau, Belmont 60

HOUSE & ESTATE AGENTS..... 81

LIFE & FIRE ASSURANCES 80

MEDICAL ACCOUNTANTS, &c. .. 82

MEDICAL AGENTS:—
Dr. Ford Hall 80
Lee & Martin 80
Medical Agency 80
Manchester Medical Agency 80
Medical Agency 80
Moore 80
Needes, Herbert 80
Needes, J. C. 80
Orridge 83
Peacock & Hadley 79
Scholastic, Clerical, &c., Assoc 79
Southern Medical Agency 81
Turner 80
Wilson & Son 81

MEDICAL SCHOOLS (London):—
Cooke's School of Anatomy 63
King's College, London 62
London Hospital Medical College 62
London School of Tropical Medicine 61
St. Bartholomew's Hos. & College .. 62
St. Mary's Hospital Medical School .. 62
St. Thomas's Hospital 62
University College, London 63

MEDICAL SCHOOLS—(Continued).
West London Post-Graduate College.. 62
Westminster Hosp. Medical School.... 62

MEDICAL SCHOOLS (Provincial):—
University of Birmingham 63
University of Durham College of Medicine 63
University of Liverpool 63

NURSING INSTITUTES:—
General Nursing Association 67
Hos. for Sick Children, Gt. Ormond-st. 67
Leeds Trained Nurses' Institution.... 67
London Nurses' Association 67
Male and Female Nurses' Assoc. 68
Male Nurses' Association 67
Male Nurses' Co-operation 67
Middlesex Hos Trained Nurses' Inst. 67
Nurses' Co-operation, Portland-place 67
Queen Charlotte's Lying-in Hos..... 67
St. John's House..... 67
Temperance Male and Female Nurses' Co-operation 67
Temperance Male Nurses' Co-operation 67
York-road General Lying-in Hospital, Lambeth 67

OFFICIAL NOTICES:—
College of Preceptors 63
Guy's Hospital 62
Hospital for Skin Diseases, Glasgow .. 61
King's College 6, 76
London Hospital Medical College 62
London Post-Graduate Association .. 63
London Throat Hospital 63
Medical Exhibition 64
Medical Graduates' College, &c. 76
Post-Graduate class, Manchester 61
Royal London Ophthalmic Hospital .. 62
Royal Naval Medical Examination .. 62
St. John's Hos. for Skin Diseases 63
Surgical Aid Society 63
Trinity College, Dublin 64
University College 74
University of Birmingham 76

PARTNERSHIPS & PRACTICES 81

RAILWAY & STEAMSHIP CO.'S. 80

SCHOOLS, PREPARATORY, &c.:—
Manchester Physical Training College 65
Ramsgate—Aberdeen House School .. 65
Swedish Clinique & School, Cromwell-road 65

TUTORS & LECTURERS:—
Duchesne 64
Evans 63
Fellowships 63
Gemmell 63
Gooch 63, 66
Kerin 66
Ashton 66
Hos. Inf., L.C. 66
Hos. Inf., L.C. 66
Pares 63
Van Praagh..... 63
Weymouth 64

(For Index to Trade and Miscellaneous Advertisements see page 4).

J. & A. CHURCHILL'S PAGE.

Next Week. Copiously Illustrated. Complete in Two Volumes. 21s. net.

A SYSTEM OF

Clinical Medicine

DEALING WITH DIAGNOSIS, PROGNOSIS, AND TREATMENT OF DISEASE.

By THOS. D. SAVILL,

M.D. Lond., D.P.H. Camb., M.R.C.P.

Vol. I. Local Diseases and Pyrexial Disorders. 12s. 6d. net.
Vol. II. Certain General Disorders, Diseases of the Skin and the Nervous System. 8s. 6d. net.

Press Notices of Volume One.

"*Dr. Savill has adopted a plan which we believe will be found of great assistance both to students and to practitioners. He has approached the subject from the standpoint of symptomatology ..... This scheme has been admirably carried out ..... a very useful and practical work ..... at the end of the volume are a large number of useful formulæ for prescriptions.*" THE LANCET.

"*The plan of this work is quite original. ..... This method obviously imitates the actual process of reasoning employed at the bedside and in office practice. ..... The practical problems in diagnosis are presented as they are actually met in practice.*" AMERICAN JOURN. OF MEDICAL SCIENCES.

By

Henry Jellett,

M.D., B.A.O. (Dub.),

Ex-Assistant Master, Rotunda Hospital, Dublin.

A SHORT PRACTICE OF MIDWIFERY.

Fourth Edition. With 151 Illustrations. 8s. 6d.

BRITISH GYNÆCOLOGICAL JOURNAL.—"Gives due attention to all important points and omits nothing essential.

A SHORT PRACTICE OF GYNECOLOGY.

Second Edition. With 225 Illustrations. 10s. 6d.

THE LANCET.—"A worthy companion of the author's 'Short Practice of Midwifery.' ..... Clearly arranged and well written ..... It is evidently the work of one who is accustomed to teach with method."

By W. S.

Lazarus-Barlow,

M.D., F.R.C.P.,

Director of the Cancer Research Laboratories, Middlesex Hospital.

A MANUAL OF GENERAL OR EXPERIMENTAL PATHOLOGY. 2nd Edition. With 33 Illustrations. 21s. net.

THE ELEMENTS OF PATHOLOGICAL ANATOMY AND HISTOLOGY. With 7 Coloured Plates and 171 Figures in the Text. 24s. net.

By

James Berry,

B.S. Lond., F.R.C.S.,

Surgeon, Royal Free Hospital.

A MANUAL OF SURGICAL DIAGNOSIS. 6s. net.

"Carefully arranged and clearly set out ..... Very satisfactory and accurate." BRITISH MED. JOURNAL.

"Exactly what is wanted ..... All is good."—MED. TIMES AND HOSP. GAZETTE.

Surgical Pathology and Morbid Anatomy.

By ANTHONY A. BOWLBY, C.M.G., F.R.C.S., Surgeon to St. Bartholomew's Hospital; Surgeon to H.M. Household. Fourth Edition. With 186 Engravings. 10s. 6d.

By ALFRED T. SCHOFIELD, M.D.

Unconscious Therapeutics; or, the Personality of the Physician. 5s. net.

The Force of Mind: or the Mental Factor in Medicine. 5s. net.

By E. HURRY FENWICK, F.R.C.S.,

Surgeon to the London Hospital.

A Handbook of Clinical Cystoscopy. With 31 Plates and 144 Engravings in the Text. 18s. net.

Ureteric Meatoscopy, in the Diagnosis and Treatment of Obscure Diseases of the Kidney. With 14 Plates and 45 Illustrations in the Text. 6s. 6d.

Operative and Inoperative Tumours of the Urinary Bladder. With 39 Illustrations. 5s.

Ulceration of the Bladder, Simple, Tuberculous, and Malignant. With Illustrations. 5s.

Tumours of the Bladder. Fasc. I. 5s. net.

Cardinal Symptoms of Urinary Disease. 3s. 6d.

Atlas of Electric Cystoscopy. (With Dr. BURCKHARDT of Basle.) With 34 Coloured Plates. 21s. net

Lectures on Medical Jurisprudence and Toxicology.

By FRED. J. SMITH, M.D., F.R.C.P., Lecturer on Medicine at the London Hospital. 7s. 6d.

Abdominal Pain: its Causes and Clinical Significance.

By A. B. MAYLARD, M.B., B.S. Lond., F.F.P.S. Glasg., Surgeon, Victoria Infirmary, Glasgow. 7s. 6d. net.

Nettleship on Diseases of the Eye.

Sixth Edition, revised and edited by W. T. HOLMES SPICER M.B., F.R.C.S. With 161 Engravings and a Coloured Plate. 8s. 6d.

The Treatment and Education of Mentally Feeble Children.

By FLETCHER BEACH, M.B., F.R.C.P., Physician to the West End Hospital for Nervous Diseases; formerly Medical Superintendent of the Darenth Schools for Imbecile Children. 1s. 6d.

"We recommend the perusal of this practical work to all who are concerned with the care and training of children of deficient mental power."—BRITISH MEDICAL JOURNAL.

Dr. HAIG'S WORKS.

Uric Acid as a Factor in the Causation of Disease. Sixth Edition. With 75 Illustrations. 15s.

Uric Acid: an Epitome of the Subject. 2s. 6d. net.

Diet and Food considered in Relation to Strength and Power of Endurance, Training, and Athletics. Fifth Edition. 2s. net.

London: J. & A. CHURCHILL, 7, Great Marlborough Street.

INDEX—(CONTINUED).

TRADE AND MISCELLANEOUS ADVERTISEMENTS.

COVER.

PAGE

CHEMISTS & DRUGGISTS:—
Armour & Co.—
Suprarenalin ... iv
Solution ... iv
Triturates ... iv
Bullock & Co.—
Pepsina Porci ... ii
Acid Glycerine of Pepsine ... ii
McKesson & Robbins—
Tartarlithine ... iii

FOODS:—
Valentine's Meat Juice Co.—
Meat Juice ... i

MED. & SURG. APPLIANCES:—
Reeper & Co.—
Electric Water or Air Beds ... i

WATCHMAKERS, &c.:—
Smith & sons, Ltd.—
Doctor's Watch ... iii
Strand Half Chronometer ... iii

AMBULANCES:—
St. John Ambulance—
Invalid Carriages ... 15

BICYCLES, &c.:—
Norton—Tricycles ... 14

BOTTLE MERCHANTS:—
Isaacs ... 93
Islington Glass Bottle Company ... 93
Milner Brothers, Ltd. ... 11

CARRIAGES, MOTORS, &c.:—
Alford & Alder—
Winter and Summer Carriages ... 15
Armstrong—
Coachmen's and Grooms' Liveries 15
De Dion-Bouton, Ltd.—
Motor Carriages ... 14
Humber, Ltd.—
Motor Cars ... 13
67, George-street, Portman-square—
Secondhand Carriages ... 13

CHEMISTS & DRUGGISTS:—
Allen & Hanburys—
Castor Oil ... 33
Medical List ... 34
Hynia Amara ... 35
Antitoxins ... 33
Benger's Food, Ltd.—
Liquor Pancreaticus ... 28
Peptonizing Powders ... 28
Brin's Oxygen Co.—Brin's Oxygen ... 34
British Druggists—
Hepogan ... 35
Rhogan ... 35
Burgoyne, Burbidges & Co.—
Dentol ... 36
Salocreol ... 36
Calodal ... 36
Burroughs, Wellcome & Co.—
Tabloid and Soloid Trade Marks ... 40
Kepler Malt Extract ... 30
Tabloid Medicine Cases ... 37
" Quinine and Camphor ... 41
Clarke & Co.—
Glyco-Thymoline ... 32
Glyco-Haruin ... 31
Diuogen ... 30

CHEMISTS—(Continued). PAGE
Cramer & Sons—
Nourry's Iodinated Wine ... 35
" Syrup ... 35
Cherbriate of Sodium (Clin) ... 35
Lecithine (Clin) ... 35
Cox & Co.—
Pills and Tablets ... 32
Gale & Co.—
Glactine Hewitt's Co. ... 26
Liq. Saponis Ætherial ... 36
Glies, schacht & Co.—
Liquor Bismuthi ... 29
Hewlett & Son—
Liq. Cantal Flav. c. Buchu et Cubeba. ... 32
Heyer & Co.—Hefo-Sellen ... 38
Kirby & Co.—
Glycerosia ... 31
Kreochyle Co.—
Barff Soro-Glycerile ... 37
Macfarlan & Co.—
Chloroform ... 34
Anæsthetic Ether ... 34
Maltine Manufacturing Co.—
Maltine with Cod Liver Oil ... 28
" with Phosphate of Iron ... 29
Martindale—
Pure Bromide of Radium ... 10
Parke, Davis & Co.—
Thyroids ... 26
Elixir Mercin & Terpin Hydrate ... 76
Uascara Evacuant ... 26
Raimes & Co.—
Allinger's Nutrient Suppositories ... 39
Roberts & Co.—
Bromidia ... 74
Sanatogen Co.—Sanatogen ... 10
Savory & Moore—
Pancreatic Emulsion ... 28
Schimmel & Co.—Follantin ... 34
Scott & Bowne—
Scott's Emulsion ... 40
Serravallo's Tonic ... 39
Squire & Sons—
Formamint ... 76
Wright Kemp ... 34
Liq. Nucleinicus ... 34
Mastoglobin ... 36
Tymar Indian Grillon ... 34
Trommer Preparations ... 39
Wilcox, Francis, Butler & Thompson—
Mist. Stimulat Comp. ... 32
Mist. Cerii Comp. ... 32
Zimmermann, A. & M.—
Exodin ... 27
Salanila ... 27
Guaiol ... 27
Bem-Eucaine-Lactate ... 27
Glycerophosphates ... 27

EMBALMERS:—
Pearce ... 86

FOODS:—
Allen & Hanburys—
Allenburys Milk Foods ... 43
" Malted Foods ... 43
Aylesbury Dairy Co.—
Humanized Milk ... 45
Batchley's Diabetic Preparations ... 45
Bovril (Limited)—Invalid Bovril ... 12
Cadbury's Cocoa ... 49
Callard & Co.—
New Diabetic Foods ... 46
Coleman & Co.—
Wincarnis ... 37
Digestible Tea Syndicate, Ltd.—
Plasmon Tea ... 30
International Plasmon, Ltd.—
Plasmon ... 22

FOODS—(Continued). PAGE
Mentay & Co.—
Hæmatogen ... 42
Protene Foods ... 36
Tibbles' Vi-Cocoa, Ltd.—Vi-Cocoa ... 10
Van Abbott & Sons—
Foods for Diabetics and Obesity ... 39
Welford & sons—
Sanitary Milk Supply ... 34

FURNITURE, &c.:—
Army and navy stores Furnishing Co. 13
Carter, Horsley Furniture ... 34
Maple & Co.—Carpets ... 20

HOSIERS, &c.:—
Jay Finish Pants and Drawers ... 21
Shirts—Shirts and Collars ... 21

MED. & SURG. APPLIANCES:—
Bailey & Son—
Adaptic Hospital Furniture ... 17
Down Bros.—
The "First Aid" ... 18
Down bros.' Lever Clamp Measuring Stethoscope ... 19
Skinner's Last Piece with Finger Rest ... 19
Indiarubber Cushions ... 19
Downing Radiant Heat Co.—
Downing Radiant Heat and Light Treatment ... 19
Evans & Wormull—
Prepuce Clamp Forceps ... 12
Galen Manufacturing Co.—
Delamere Nasal Spray ... 61
Hawksley—
Riva-Rocci Sphygmomanometer ... 61
Heal & sons—
Hospital Bedsteads and Aseptic Furniture ... 21
Holland—Isomp Arch Sock ... 13
Lushne & Sonnmann—Bandages ... 13
Marconi's Wireless Telegraph Co.—
Induction Coils ... 14
May, Roberts & Co.—
Absorbent Tissue ... 24
Cotton Wools ... 24
Gamgee Tissue ... 24
Lints ... 24
Waterproof Sheetings ... 24
Millikin & Lawley—Osteology, &c. ... 19
Pond—Arch support Socks ... 23
Pope & Plante—
Elastic Stockings ... 11
Abdominal Supporting Belts ... 11
Robinson & Sons—Gamgee Tissue ... 10
Syam, Josephine & Co.—
Corsets and Belts ... 13
Watson & Sons—
High Frequency Apparatus ... 13

MINERAL WATERS:—
Æsculap Bitter Water Co.—Æsculap ... 47
Apollinaris Co.—Apenta ... 46
Canwal, Ltd.—Canwal ... 31
Contrexeville Pavilion ... 46
Davis-Tarnap Water ... 38
Hogg & Son—Aërated Lyddite Water 60
Ingram & Royle, Ltd.—
Vichy ... 41
Evian Source Cachat ... 47
Salutaris Water Co.—
Salutaris Water ... 46
Vittel Source ... 47

PHOTOGRAPHY:—
Watson—High Frequency Apparatus ... 13
Martin—Developing Reliable Film ... 23

PRINTERS & ENGRAVERS:—
Cooke & Co.—
Brass Name Plates and Lamps ... 23

SANITARY APPLIANCES, &c.:—
British Lyscform Co., Ltd.—
Lyscform ... 31
Pannett & Johnson—
Ebonit-Kalmet ... 13
Pale Naptha Soap ... 14, 30
Joyce' Sanitary Compounds Co.—
Cyllin ... 35
Newton, Chambers & Co.—Coal ... 34
Sanitary Wood Wool Co.—
Hartmann's Guinea Outfit for Accouchement, &c. 18
" Hygienic Wood Wool Towelettes ... 16
" Wood Wool Sheets ... 18
Seabury & Johnson—
Formaldehyde Fumigator ... 18
Simon Bros.—
Hall's Distemper ... 20
Southall Bros. & Barclay—
Accouchement Sets ... 45
" Sheets, &c. ... 45

SURGICAL INSTRUMENTS, &c.:—
Arnold & Martin—
Uterine Dilators ... 12

TAILORS, BOOTMAKERS, &c.:—
Lewis & Marshall—Boots ... 13
Emerson Shoe Store—
Emerson Boot ... 13
Evans & Co.—
Frock Coat ... 61
Cashmere Trousers ... 61
Evening Dress Suit ... 61

TYPEWRITING, &c.:—
Cambridge Typewriting Agency, Adelphi ... 22

VACCINE LYMPH:—
Allen & Hanburys—
Calf Lymph ... 71
Hime—Glycerinated Calf Vaccine ... 13
Jenner—Institute for Calf Lymph ... 31
Rebman—
Glycerinated Pure Calf Lymph ... 71
Renner's Calf Lymph Establishment ... 11
Wyleys, Ltd.—Calf Lymph ... 11

WINES, BEER, SPIRITS, &c.:—
Beck & Co.—
"G. B." Diabetic Whisky ... 29
Brown & Paas—
Pine Vintage Brandy ... 60
Fenn's Brandy—
Commendador Port Wine ... 28
Gautier's Liqueurs, Brandy ... 28
Mackenzie & Co.—
Pure Highland Malt Whisky ... 29
Marsell's Three Star Brandy ... 61
Simpson & Co.—Scotch Whisky ... 34
Sykes & Co.—Warsala ... 60
Tanqueray, Gordon & Co.—
Dry London Gin ... 40
The Orion South Australian Wines ... 41

MISCELLANEOUS:—
Allen James & Co.—
Telestereo Table ... 61
Hasbarley Forms ... 13
Ewart's Lighting Geyser ... 13

EVERY FRIDAY.

THE LANCET.

PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 4

Subscriptions (which may commence at any time) are payable in advance.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, *accompanied by a remittance.*

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

ADVERTISING.

Books and Publications	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto.	0 5 0
Trade and Miscellaneous Advertisements and Situations Vacant	Ditto.	0 4 6
	Every additional line	0 0 6

Situations Wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.

Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

OFFICES: 423 AND 424, STRAND, LONDON, W.C.; AND 1, 2, AND 3, BEDFORD STREET, ADJOINING.

ABSTRACT OF

The Hunterian Lectures

ON

THE DISSEMINATION OF MAMMARY CARCINOMA.

Delivered before the Royal College of Surgeons of England on March 13th, 15th, and 17th, 1905,

BY W. SAMPSON HANDLEY, M.S., M.D. LOND., F.R.C.S. ENG.,

HUNTERIAN PROFESSOR; SURGEON TO OUT-PATIENTS, SAMARITAN FREE HOSPITAL; "RICHARD HOLLINS" CANCER RESEARCH SCHOLAR, THE MIDDLESEX HOSPITAL.

LECTURE III.[1]

Delivered on March 17th.

MR. PRESIDENT AND GENTLEMEN,—We now come to the second great division of the subject, the origin of the metastases found in the viscera. There are few forms of carcinoma in which visceral deposits are more frequently met with, or more widely distributed, than in cancer of the breast. Of 329 cases from the records of the Middlesex Hospital, excluding deposits in the axillary glands, metastases occurred in 77 per cent.

SUMMARY OF CONCLUSIONS ON VISCERAL DISSEMINATION.

The time available is short and I shall therefore submit to you at once a concise statement of the conclusions to which my work has led. By thus inverting the subject I shall avoid at the cost of some loss of emphasis the necessity of continually turning aside from facts to inference. It is for you to decide whether the implied inductions are justified. The evidence upon which I rely will be found more fully stated in my Astley Cooper Prize Essay (1904) on "Epigastric Invasion of the Abdomen in Breast Cancer," shortly to be published in the Guy's Hospital Reports.

The great frequency of visceral metastases in cancer of the breast is mainly owing to the extension of cancerous permeation along the fine anastomoses which, piercing the parietes, connect the lymphatic plexus of the deep fascia with the subendothelial lymphatic plexuses of the pleura and peritoneum and with the mediastinal and portal glands. It has already been shown that in parietal dissemination the main factor is centrifugal permeation of the fascial plexus. And in visceral dissemination, too, permeation, especially of the subserous plexuses, plays an essential part. But these plexuses lie close to the serous surface and consequently, in the later stages of visceral dissemination, a factor even more important than permeation comes into play. The dominant factor in visceral dissemination is the escape of cancer cells into the serous cavities, their distribution through those cavities under the influence of gravity and of visceral movement, and their implantation at various points upon the serous surface of the viscera. This process may be spoken of as transperitoneal or transpleural implantation. The occurrence of permeation and of embolic gland invasion from each of the foci thus arising soon terminates the patient's existence. If this outline sketch of visceral dissemination be a correct one it should be possible to show: (*a*) that the abdomen may be invaded independently of the thorax and *vice versâ*. And both for the peritoneal and pleural cavities it has to be proved: (*b*) that its subserous lymphatic plexus is connected by fine anastomoses with the fascial plexus which lies beneath the subcutaneous fat; (*c*) that along these connecting vessels permeation extends from the fascial to the subserous plexus; (*d*) that in consequence cancer cells escape into the serous cavity; (*e*) that these cancer cells are capable of becoming re-implanted at various points on the serous membrane and of thus giving rise to metastases; (*f*) that if the serous cavity is obliterated by adhesions and trans-cœlomic implantation is consequently prevented dissemination is delayed; and (*g*) that the distribution of the visceral metastases is such as would be expected from this mode of origin, and more especially that they primarily affect the surface of the viscera, and that owing to the action of gravity they are found most abundantly at the lower limits of the serous cavities.

CURRENT VIEWS ON VISCERAL DISSEMINATION.

The embolic theory, rather perhaps in default of a rival than upon its own merits, is the accepted explanation of visceral metastases in general (see Lecture I.). I shall attempt to show, not directly but by implication, that for visceral as for parietal metastases the embolic theory is inconsistent with the broad facts, though for isolated cases it is undeniably true.

STATISTICAL DATA OF EARLY AND OF LATE CASES.

It will frequently be necessary to refer to the data which I have obtained from the pathological records of the Middlesex and of Guy's Hospitals for the 30 years 1871–1900. The two records have been kept separate for purposes of comparison, since they are entirely different in character. Owing to the right of patients in the special cancer wards of the Middlesex Hospital to remain until "relieved by art or released by death" a large proportion of the necropsies are on cases which have run their full course. The pressure on the accommodation of Guy's Hospital leaves no room for this class of case in the surgical wards. Hence in the smaller total of necropsies at Guy's Hospital there is a large proportion of cases in the operable stage—of cases which died after operation or from intercurrent disease. Naturally a large majority of these cases occurred in the earlier (pre-antiseptic) portion of the period under review, while, on the other hand, the number of necropsies from the special cancer wards of the Middlesex Hospital has remained practically constant. These two sets of cases will be referred to as the "early" (Guy's) and the "late" (Middlesex) set of cases, though of course some late cases occur in the Guy's records and some early ones in those of the Middlesex Hospital.

ABDOMINAL AND THORACIC INVASION OFTEN INDEPENDENT EVENTS.

Thoracic metastases occur without any invasion of the abdomen in 10 per cent. of the early and in 22 per cent. of the late cases. Conversely, abdominal metastases occur without any invasion of the thorax in 17 per cent. of the early and in 11 per cent. of the late cases. The latter fact especially is a very striking one, to which I cannot too strongly direct your attention. For according to accepted theories the abdomen is always invaded by way of the thorax, whereas it would appear from these figures that, in point of fact, invasion of the abdomen and invasion of the chest are, or may be, entirely distinct events requiring separate consideration. Invasion of the abdomen will be considered first.

THE EARLY STAGES OF ABDOMINAL INVASION.

Cases in which abdominal growth is present only in a single organ or pair of organs are to be regarded not as examples of the haphazard incidence of cancer but as indicating the usual starting points of the attack on the abdominal viscera. When only one organ is affected it may be inferred that the invasion is in an early stage, unless, as is often the case in the liver, the organ is extensively infiltrated. Of the whole number of cases a single abdominal organ or pair of organs was affected in 115—i.e., in 27 per cent. Table III. shows the incidence upon the various organs.

An account of abdominal dissemination must explain not only why the liver is usually the point of first attack but also why the pelvic viscera, and more rarely the portal glands and the peritoneum, may exceptionally present the earliest metastases. The ten cases in which cancer was invading the abdomen retroperitoneally also require explanation. This is evidently a later event than transperitoneal invasion, for it occurs only in the late series of cases.

EPIGASTRIC INVASION OF THE ABDOMEN THROUGH ITS PARIETES.

In the autumn of 1903 I was present at the necropsy on a case of cancer of the breast of which the following is a brief account.

CASE 1. *Epigastric invasion.*—The patient was aged 63 years. Twenty-one months before death the left breast and axillary glands were removed for cancer. Two months before death she was readmitted with numerous

[1] Abstracts of Lectures I. and II. were published in THE LANCET of April 8th (p. 909) and 15th (p. 983), 1905, respectively.

subcutaneous nodules in the region of the scar, especially below it, where they extended nearly to the costal margin. Three weeks after readmission a large mass, diagnosed as omental growth, was felt in the abdomen. At the necropsy no glandular or other metastases were found in the thorax, while in the abdomen they were numerous. The left lobe of the liver was riddled by secondary deposits, which in the right lobe were more sparsely distributed. The fat around the pylorus contained numerous cancer nodules. An irregular nodular line of growth ran along the mesenteric attachment of the small

TABLE III.—*Derived from 422 cases of Cancer of the Breast, showing in what number of instances, either with or without other metastases, a single* abdominal *organ or pair of organs was affected by cancer.*

Organ affected.		Guy's cases.	Middlesex cases.	Total number of cases.
Viscera covered by peritoneum.	Liver	13	77	90
	Portal glands	1	1	2
	Ovaries	1	2	3
	Uterus	0	1	1
	Pelvic peritoneum	0	1	1
	Peritoneum	0	4	4
	Mesentery	1	1	2
	Intestine	1	0	1
	Spleen	0	1	1
Retro-peritoneal viscera.	Right kidney	0	4	4
	Left kidney	0	1	1
	Both kidneys	0	1	1
	Right adrenal	0	1 (?)	1 (?)
	Lumbar gland	0	1	1
	Lumbar vertebra	0	2	2
—		17*	98†	115‡

* Out of 93 cases = 18 per cent. † Out of 329 cases = 29 per cent.
‡ Out of 422 cases = 27 per cent.

intestine. Douglas's pouch was filled by a mass of diffuse growth in which the ovaries lay imbedded. The omentum appeared normal, though one or two cancerous glands were present in it high up. The large abdominal mass which made its appearance just before death proved to be a diffuse cancerous infiltration of the mesentery, apparently spreading from the lumbar glands. None of the retroperitoneal organs were invaded by cancer.

As a preliminary to the consideration of this case the subject of transperitoneal implantation must be briefly dealt with. It seemed quite certain in this case that cancer cells had escaped into the peritoneal cavity and had implanted themselves at various points. Only the organs covered by peritoneum were cancerous. The filling of Douglas's pouch by a diffuse mass of growth matting the pelvic structures, a condition which is recorded four times in 422 necropsies, showed the influence of gravity on the site of implantation. In one case I have been able to trace the earliest stage of pelvic invasion—a case in which the only pelvic deposit was a solitary miliary nodule, microscopically proved to be cancer, on the floor of Douglas's pouch.

Omental cancer.—Cancer of the omentum occurred in only 1 per cent. of the cases of cancer of the breast which I have collected and this is an obvious argument against the view that escape of cancer cells into the peritoneal cavity is a frequent event. The case I have just related throws light on this point. A microscopic section of the apparently normal omentum in Case 1 showed it to be bordered by a false membrane containing degenerate cancer cells. It appears that the pre-eminent encysting power of the omentum usually, though not invariably, enables it to protect itself against invasion and that this fact explains the rarity of omental cancer. The most interesting form of omental cancer is that in which numerous secondary growths hang from the surface of the omentum as cancerous polypi attached by delicate non-cancerous pedicles. In such cases trans-cœlomic (i.e., trans-peritoneal or trans-pleural) implantation is seen in its most unequivocal form. Beneke is stated by Borst to have observed in peritoneal fluid minute spherules of cancer cells surrounded by an organised layer of non-vascular lymph. Often, no doubt, the cancer cells thus encysted are destroyed but sometimes the condition above described results in consequence, as it seems to me, of the adhesion of these encysted masses to the great omentum and of their continued growth. In a later stage the polypoid growths become sessile and invade the substance of the omentum, which is at last seen as a transversely elongated tumour puckered up along the lower border of the transverse colon.

The main problem to be solved in Case 1 may be stated as follows: How, in the absence of invasion of the thorax, did cancer obtain access to the abdomen? The presence of subcutaneous nodules nearly as far down as the left costal margin, and the predominant incidence of cancer upon the left lobe of the liver, suggested to me a direct invasion of the abdominal cavity through the epigastric parietes where the left lobe of the liver lies in direct contact with them. An opportunity of testing this hypothesis presented itself in the next two cases. Though in both these cases the chest as well as the abdomen had been penetrated there was conclusive *direct* evidence of invasion through the abdominal parietes of the epigastric region. It is immaterial to my argument whether in these particular cases the abdomen was also invaded *viâ* the thoracic cavity.

CASE 2. *Epigastric invasion.*—The patient was aged 36 years. Two years before death the right breast was removed for carcinoma. At the necropsy the thoracic wall showed an extensive cancerous ulcer extending inwards to the middle line and outwards to the axilla. Beneath the ulcer the growth had invaded the underlying muscles and pleura. The left pleura and pericardium also showed cancer. The axillary, supraclavicular, and posterior mediastinal glands were cancerous. The only visceral metastases were a large solitary nodule in the liver at the umbilical notch and nodules in both ovaries. In the vicinity of the primary growth were some scattered subcutaneous nodules. The lowest of these was situated eight inches above the umbilicus. It was found that permeation of the deep fascia had extended downwards two and a half inches below this nodule. At the level of the tip of the ensiform cartilage there were nodular deposits on the anterior layer of the rectus sheath. Here the rectus muscle was deeply invaded by growth and a fibrous septum containing permeated lymphatics was traced three millimetres backwards into the substance of the muscle. In order to trace the further course of the growth sections of the falciform ligament and of the included round ligament of the liver were made at different points. (*a*) In a section of the falciform ligament about three inches long, parallel to, and six millimetres distant from, the convex surface of the liver, growth was found about three millimetres from the anterior margin of the ligament. (*b*) In a section near the umbilicus where the parietes had been proved to be free from growth none was found in the round or falciform ligaments. (*c*) In a section of the round ligament just within the umbilical fissure scattered cancer cells could be seen in the subendothelial tissue all round it. (*d*) A section of the falciform ligament taken far back, beneath the diaphragm, was free from growth.

In this case it was demonstrated (*a*) that fascial permeation had extended considerably below the ensiform cartilage; (*b*) that the rectus muscle in the epigastric angle was in consequence deeply invaded by cancer; (*c*) that at the same level there was a large solitary nodule in the contiguous portion of the liver; and (*d*) the escape of cancer cells into the cœlom, their gravitation to its lowest point, and their subsequent implantation, were shown by the nodules in each ovary, which were the only other abdominal metastases. It will be noted that in this case epigastric invasion was apparently subsequent to, though not consequent upon, invasion of the thorax. If this were usually the case the surgical interest of epigastric invasion would be comparatively slight.

CASE 3. *Epigastric invasion.*—The patient, aged 57 years, died from a cancer of the left breast two years after it was first noticed. Ten months before death she became jaundiced and at this time the left breast was represented by a shrunken ulcerated scirrhus puckering the surrounding skin. The reporter notes that there was marked tenderness just below the ensiform cartilage but no obvious enlargement of the liver. A hard lump appeared in the *right* breast just before death. At the necropsy there was cancer *en cuirasse* over the left side of the chest. There was no ulceration of the primary growth at the time of death. It had extended

through the chest wall. The pleura and pericardium beneath showed minute nodules and some of the bronchial glands were cancerous. There were no other deposits in the chest. Upon the convex surface of the liver in the neighbourhood of the falciform ligament a few small nodules of cancer were visible but none were present in the substance of the organ. The common bile-duct was surrounded and constricted near its outlet by a nodule of growth. The left kidney showed cancer at one point on its surface. On the pelvic peritoneum were some small flat cancerous nodules. On the parietal peritoneum at the level of the tip of the ensiform cartilage a few miliary nodules were visible. Above and below this point the peritoneum appeared normal. This was especially noted to be the case at the attachment of the diaphragm to the ensiform cartilage.

A vertical section of the entire thickness of the abdominal wall from skin to peritoneum in the subxiphoid region showed the following points: (*a*) the skin was free from growth; (*b*) the deeper part of the subcutaneous fat was extensively infiltrated, while the more superficial layers were comparatively free; (*c*) the deep fascia was much thickened and infiltrated throughout by growth; (*d*) the superficial fibrous bundles of the linea alba were much eroded by growth; lines of cancer cells, apparently lying partially in lymphatic vessels, could be seen passing between its bundles and debouching on the subperitoneal fat (the transversalis fascia is in this situation hardly recognisable as a distinct layer); (*e*) the subperitoneal fat, between whose bundles wide empty interspaces are present, was practically free from growth; though this layer had itself escaped it could offer but a minimum of resistance to the passage of cancer cells through it; and (*f*) the peritoneum showed cancerous permeation of the subendothelial lymphatic plexus; many cancer cells were also lying in the cellular interspaces. Here and there the peritoneal endothelium overlying the cancer cells was degenerate. Quite evidently at these points cancer cells were entering the peritoneal cavity.

In each of three sections taken at different levels through the falciform and round ligaments between the umbilical notch and the anterior abdominal wall a small area of cancerous permeation was found in the falciform ligament. The permeated lymphatics were found only in the *left* lamina, to which (owing to the attachment of the falciform ligament to the posterior layer of the *right* rectus sheath, an inch to the right of the middle line) cancer would first naturally extend from the epigastric peritoneum. The two laminæ of the ligament are here separated by a thick pad of fat. If growth had extended downwards through the diaphragm one would naturally have expected the impartial invasion of *both* laminæ. Moreover, a section of the falciform ligament far back under the diaphragm was found to be free from growth.

The escape of cancer cells into the peritoneum was locally shown in this case merely by a few small macroscopic nodules on the convex surface of the liver. Gravity had carried a few cells into the pelvis where they had given rise to small peritoneal nodules. The permeated lymphatics which were found in the falciform ligament are anatomically known to lead to, or from, the portal glands. Accordingly a group of metastases, doubtless due to centrifugal permeation round the invaded glands, was found in their immediate vicinity. Such appears to be the explanation of the pyloric nodules and of that in the bile-duct. The only remaining abdominal focus was that in the right kidney. (See later—retroperitoneal invasion.)

It appears, then, that of three necropsies, all occurring within the space of three months, presumptive evidence of epigastric invasion just below the ensiform cartilage was obtained in the first one and conclusive evidence in the last two. During this period a total of five necropsies on cancer of the breast might on the average be expected at the two hospitals concerned. The inference that epigastric invasion is a frequent event seems unassailable.

ANATOMY OF THE EPIGASTRIC ANGLE.

It is somewhat remarkable that so far as I can find it has never been suggested, even as an arm-chair hypothesis, that cancer of the breast directly invades the abdomen through the epigastric parietes. Mr. A. M. Sheild, for instance, the most recent systematic writer on cancer of the breast in this country, says:[2] "It seems hardly logical to assume that growths of the ovary, uterus, or liver, occurring perhaps years after an amputation of the mamma, are true recurrences in the strict sense of the word. Their occurrence, however, is very mysterious and significant and at present wrapped in obscurity." And yet the anatomy of the epigastric region strongly suggests the likelihood of this mode of invasion. According to Mr. H. J. Stiles, the lower and inner margin of the breast overlies the sixth costal cartilage—that is to say, this part of the circumference of the breast is distant only about an inch from the interspace between the ensiform and the seventh costal cartilages. Thus as soon as parietal permeation has extended little more than an inch beyond the edge of the breast the cancerous lymphatics of the deep fascia are no longer separated from the subserous (subperitoneal or subpleural) fat by a bony cage of many layers, covered by thick muscles, but simply by a single layer of fibrous tissue, traversed by lymphatic channels. For at the tip of the ensiform cartilage the transversalis fascia is hardly recognisable as a distinct layer and the parietal lymphatic plexus is separated from the subperitoneal fat simply by the linea alba. It is not surprising if, through this obviously weak spot, cancer frequently reaches the peritoneum before it has succeeded in reaching the well-protected pleura, even at points directly subjacent to the primary focus.

[2] Sheild Diseases of the Breast, 1898, p. 457.

A STATISTICAL STUDY OF EPIGASTRIC INVASION.

The occurrence of epigastric invasion has now been histologically proved in two cases. It is impossible single-handed to examine a large number of cases by this laborious method. To obtain a broad view of the subject it is necessary to turn to post-mortem records. In the absence of direct evidence for any other hypothesis it is legitimate to assume epigastric invasion in all cases in which the thorax has escaped invasion and in which at the same time metastases are present in the viscera intimately related to the peritoneum. Excluding six cases in which co-existent bone or brain metastases might *primâ facie* indicate embolic blood invasion no fewer than 53 such cases were found among 422 necropsies. As might be expected if the group is a natural one the age incidence in these 53 cases is practically identical with that of the whole mass of cases. It must be emphatically stated that these cases do not represent the whole number in which epigastric invasion occurs, for all cases in which previous or subsequent invasion of the thorax took place are *ipso facto* excluded from consideration.

It appears, then, that at the time of death *uncomplicated* epigastric invasion, apart from the independent invasion of the thorax which must often precede or follow it, is present in 12 per cent. of all cases. The total incidence of epigastric invasion must be somewhere between 12 per cent. and 46 per cent., the difference between these figures representing the percentage of (late) cases in which both the chest and the abdomen are invaded. Probably the latter figure is much nearer to the truth than the former one.

EPIGASTRIC INVASION AN EARLY EVENT.

It is of great practical importance to know whether epigastric invasion usually takes place before or after invasion of the chest. If it is an early event invasion of the abdomen may be found apart from invasion of the chest more frequently in the early than in the late set of cases.

TABLE IV.—*Showing the Comparative Invasion-percentages of the Thorax and Abdomen in an Early (Guy's) and a Late (Middlesex) Set of Cases.*

—	Early cases.	Late cases.
	Per cent.	Per cent.
Metastases present in the abdomen and not in the thorax (abdominal group)	17	11
Metastases in the thorax and not in the abdomen (thoracic group)	10	22
Metastases in both cavities (abdomino-thoracic group)	20	35
No metastases present	40	23
Other cases, e.g., those of bone invasion ...	13	9

The early cases, as might be expected, are more often free from metastases and less frequently show thoracic or abdomino-thoracic invasion. On the other hand, there is this apparently anomalous fact—that the early series shows, as compared with the late series, a considerably *larger*

percentage of cases in the abdominal group. The diminution which in the late series occurs under this heading can be explained only by the *subsequent* invasion of the thorax in a certain number of the abdominal group of cases. Such cases must then pass to the abdomino-thoracic group which is thereby much augmented. If the natural supposition be accepted that had they lived long enough the early cases would have assimilated themselves statistically to the late cases, there is then no escape from the conclusion that in many of the abdomino-thoracic group *abdominal* invasion was the prior event. Epigastric invasion thus possesses a surgical importance much greater than would be suggested by the 12 per cent. of cases in which at the time of death it was still present in an uncomplicated form. Table IV. also seems to indicate that if epigastric invasion does not make its appearance early in the course of the case it is not very likely to supervene later. For the cases which (owing to subsequent invasion of the thorax) disappear from the abdominal group are not to the full extent replaced by fresh ones. Thoracic invasion on the average commences later but is more certain ultimately to occur. Hence the large increase in the thoracic and abdomino-thoracic groups which is seen in the late set of cases.

THE ABDOMINAL DEPOSITS IN 53 CASES OF PURE EPIGASTRIC INVASION.

Many of the cases in this group must be early ones, for otherwise the thorax also would very likely have been invaded. It is therefore not surprising that in 40 of them metastases were present only in one abdominal organ or pair of organs. The liver was invaded in 36 cases, both ovaries in two cases, the capsule of the spleen in one case, and the edge of the mesentery in one case. Owing to its close contact with the cancerous epigastric peritoneum and to its lymphatic relations with the portal glands, the liver is nearly always the first organ to suffer. Rarely cancer cells may fall through the peritoneal cavity and cause pelvic metastases before the liver is invaded. The remaining 13 cases presented multiple metastases. In five of them growth in the liver was associated with nodules in the ovaries or upon the pelvic peritoneum. In two of these five cases no other abdominal metastases were present. In a third the only other metastases was in the spleen. Table V. shows the various metastases present in the whole number of cases and their predominant incidence on the liver and the pelvic organs.

THE HEPATIC METASTASES FOLLOWING EPIGASTRIC INVASION.

When a cancer of the breast has penetrated to the epigastric peritoneum the liver may be attacked in two distinct ways. Free cancer cells may implant themselves on its surface or permeation may pass along the lymphatics of the falciform ligament to the portal glands, and thence secondarily extend into the interior of the liver. In the latter event there is not necessarily any evidence of the escape of cancer cells into the peritoneal cavity. Judging from my own observations, hepatic metastases generally make their first appearance on the convex surface of the liver near the falciform ligament. Post-mortem records are usually silent as to the localisation of hepatic deposits, an omission to which attention may be called.

PRIMARY INVASION OF THE PORTAL GLANDS THROUGH THE EPIGASTRIC PARIETES.

Often, perhaps usually, the portal glands become cancerous as a *result* of hepatic metastases. But that this is by no means invariably the case, and that cancerous portal glands may be the *cause* of hepatic deposits, is indicated by the occasional precedence of cancer of the portal glands in point of time. The case I am about to relate illustrates this fact. A man, aged 74 years, died from cancer of the left breast of eight years' standing. A year before death the axillary glands became enlarged. Six months before death jaundice supervened. The only visceral deposits were a small mass of growth in the portal fissure, surrounding the neck of the gall-bladder, and a nodule in one portal gland. The report of the necropsy is a particularly full and careful one. This is the only case among the 53 of uncomplicated epigastric invasion in which this particular point could be proved. It must, of course, be very rare for cases to die in this incipient stage of abdominal invasion. The case, however, is by no means unique. In a total of 422 cases, along with thoracic deposits, abdominal metastases were found *exclusively* in the portal glands in two cases. In two other cases the portal glands were cancerous while the liver had escaped invasion.

Lymphatic connexions of the portal glands.—The breast is indirectly connected with the portal glands by two routes. (*a*) Certain afferent lymphatics originate upon the anterior part of the convex surface of either lobe of the liver and thence pass into the falciform ligament opposite to its attachment to the abdominal wall. They curve downwards and then backwards and entering the umbilical notch above the round ligament they pass backwards in the umbilical fissure to the portal glands. The connexion of these lymphatics with the subserous lymphatic plexus in the epigastric angle and thence—through the lymphatics which perforate the linea alba and by way of the fascial plexus—with the mammary lymphatics was demonstrated in Case 3 of epigastric invasion. (*b*) Several efferent lymphatics run forward along the umbilical fissure from the portal glands. Turning upwards at the umbilical notch they pass between the layers of the falciform ligament, pierce the diaphragm, and terminate in glands lying on its upper surface to the left of the middle line, between the pericardium and the anterior wall of the chest. Efferent lymphatics pass from these glands to the internal mammary chain and so a connexion is established with the breast. Permeation may conceivably extend from the breast to the portal glands by this route, but owing to the two sets of glands which have to be penetrated this must be a late event and must be accompanied by advanced intrathoracic growth.

Central invasion of the liver from cancerous portal glands.—Sometimes the liver presents a large central mass of growth, while its periphery is relatively normal. In other cases the whole organ is enormously enlarged and cancerous throughout and even in these circumstances no metastases indicating the escape of cancer cells into the peritoneum may be present. These cases are best explained as due to permeation extending up-stream into the hepatic lymphatics from cancerous portal glands. The lungs are known to be frequently invaded in a similar way from the bronchial glands. It is possible that in some of these cases cancer

TABLE V.—*Showing the Frequency of Invasion of the Various Abdominal Organs in 53 Cases of Uncomplicated Epigastric Invasion.*

Part affected.	Probable mode in which the metastases arise.	In what number of cases.	Percentage of total.
Liver.	By contact with the epigastric peritoneum or by secondary invasion from the portal glands.	45	84
Portal glands.	Invasion of lymphatics of the falciform ligament from the epigastric peritoneum or secondary to hepatic metastases.	5	9
Gall-bladder or ducts.	If on the fundus by contact with the epigastric peritoneum; if at the neck by extension of permeation from the portal glands.	4	8
Spleen.	Situated not very far from the infected epigastric peritoneum.	2	4
Ovaries.	From the gravitation of cancerous particles into the pelvis.	6	11
Pelvic peritoneum.	Ditto.	3	6
Fallopian tube.	Ditto.	1	2
Surface of uterus.	Ditto.	1	
Mesentery.	From the dispersion of cancerous particles through the peritoneal cavity.	3	6
Peritoneum generally.	Ditto.	2	6
Intestinal peritoneum.	Ditto.	2	4
Lumbar glands.	In later stages by secondary gland infection from the other abdominal metastases.	5	9
Lumbar vertebræ.	From cancerous lumbar glands.	1	2

particles have been carried into the liver by the anastomoses which are known to connect its veins with those of the epigastric parietes. But, for reasons already given, this event is probably quite exceptional, although malignant emboli are perhaps more likely to survive in the liver than in any other organ. It is difficult otherwise to explain the great frequency of hepatic metastases in rectal cancer.

RETROPERITONEAL INVASION OF THE ABDOMEN.

When cancer cells obtain access to the pleural cavity, an event which frequently happens, they tend under the influence of gravity to implant themselves especially about the lower limit of the posterior parietal pleura. Permeating the subpleural lymphatic plexus they soon reach the lymphatics of the diaphragmatic crura. This is an event of great importance, for the crural lymphatics, unlike those of the rest of the diaphragm, do not carry lymph to the thoracic glands but drain into the lumbar glands of the abdomen. It seems probable that the crural lymphatics are large enough to allow of embolic invasion of the lumbar glands. Among the 115 cases which showed a single abdominal secondary deposit there were ten in which the solitary metastasis was situated in the kidneys, the suprarenals, the lumbar glands, or the lumbar vertebræ. These organs and the posterior portion of the liver suffer first in retroperitoneal invasion of the abdomen and they may be found imbedded in a mass of diffuse growth which has replaced the perirenal fat. Transperitoneal implantation, if it occurs at all, is a very late event. In one case among the Guy's Hospital records the pathologist describes the process of retro-peritoneal inversion as follows: "The disease had travelled by the lymphatics through the left crus of the diaphragm; lying upon this crus was a cancerous gland of the size of a filbert; a chain of cancerous glands, none larger than this, could be traced down the front of the spine to the pelvis, and also to the portal fissure." The primary growth was in the left breast, and there were deposits in the left pleura. Time forbids me to describe the case in which I was able microscopically to confirm these observations.

But this is not the only way in which retroperitoneal invasion may occur, for in six cases, all of them, be it noted, occurring in the late series, invasion of the retroperitoneal organs was found in the absence of thoracic invasion. In three of these six cases subcutaneous nodules were present, a very high proportion, for they were found in only 3 per cent. of the early and in 22 per cent. of the late series of cases. Subcutaneous nodules are an index of extensive permeation of the fascial lymphatic plexus and it seems probable, in the cases in question, that this process had extended to the loin and thence by way of the intramuscular lymphatics to the perirenal fat and the lumbar glands. In one case, at a point just below the twelfth rib, I traced a longitudinally cut permeated lymphatic for some distance into the underlying muscles from the invaded fascial plexus. (See Lecture II., Case 2.) The rarity of retroperitoneal invasion in the early series of cases shows that it is a very late and unusual event, the only importance of which is that it may give the *coup de grâce* to an already doomed patient; for it must always be preceded either by thoracic invasion or by very extensive parietal dissemination.

DIAPHRENIC INVASION OF THE ABDOMEN.

In rare and late cases I find that the abdomen may be invaded from the thorax by direct infiltration of the substance of the diaphragm in its anterior part. The best described case of this kind occurs among the Guy's Hospital records. Cancer, like empyema, appears to find great difficulty in penetrating the diaphragm from above downwards, perhaps on account of the exceptionally strong lymph-stream which is opposed to it. The diaphragm is recorded as the seat of cancerous deposit only six times in 422 necropsies. In a case which I was able to examine microscopically the anterior part of the diaphragm formed an indurated sheet six millimetres thick. The layer of growth lay entirely on the pleural aspect of the diaphragm and had only partially infiltrated the underlying muscle and tendon. The subphrenic peritoneum, normal to the naked eye, showed early microscopical infiltration. The lymphatics of the falciform ligament were permeated but nevertheless the liver was free from cancer. An extensive mass of retroperitoneal growth was present. This case illustrates the extreme lateness, and consequent rarity, of diaphrenic invasion; for retroperitoneal invasion, itself a late event, was present in an advanced degree, yet diaphrenic invasion was still in the earliest stage. The abdominal course of diaphrenic invasion must be exactly similar to that of epigastric invasion, for in both cases the cancer cells reach the peritoneal cavity at about the same point, though by different routes.

INVASION OF THE THORAX.

Since the modern operation for cancer of the breast appears to afford all the security against thoracic invasion which it is possible to attain, I have not paid much attention to this subject. There are, however, one or two points to which attention may be called.

Invasion of the anterior mediastinal glands.—It is sometimes stated or implied that some of the lymphatics of the breast convey lymph not to the axillary but to the anterior mediastinal glands. And it is doubtless true that there is a mediate communication between the breast and these glands by way of the pectoral lymphatic plexus and of the perforating branches which run from that plexus to the glands in question. These perforating branches, must, however, be regarded not as true afferent lymphatics but as mere anastomotic channels of small diameter and sluggish stream along which embolic transport of cancer cells cannot occur. How otherwise can the comparative immunity of these glands be explained? Invasion of the axillary glands is an early and almost constant event. In the anterior mediastinal glands on the contrary, Torök and Wittelshofer[3] out of 366 necropsies found cancer in only 6·5 per cent. Permeation appears to be the only process by which cancer of the breast can reach these glands and their comparative immunity shows either that it reaches them late or that they are able to destroy the comparatively limited number of cancer cells which can in this way reach them. These perforating branches, guarded as they are by glands, are probably less dangerous than the fine direct communications, which, according to Mr. Roger Williams,[4] connect the pectoral lymphatic plexus directly with that of the pleura. There is a considerable body of evidence that lymphatic glands are able to deal with cancer cells in limited doses; Williams especially has drawn attention to the fact that in days when the axillary glands were not removed with the breast axillary recurrence was not so frequent as, with our present microscopical knowledge of axillary gland invasion, we should expect.

In this connexion it is perhaps worth recording that in a case of diaphrenic invasion of the abdomen I found in the interspace between the seventh costal and ensiform cartilages, imbedded in the tissues, one or two minute nodules of lymphoid tissue containing cancer cells. It is possible that these nodules, which are not constantly present, had in this case protected the abdomen against epigastric invasion and had thus given time for diaphrenic invasion to occur.

Invasion of the pleura.—The importance of transpleural implantation is shown by the great frequency of secondary growths of the pleura. They occurred in 38 per cent. of 422 cases. Sometimes, as in the specimen I show you, secondary growths of the pleura may assume a polypoid form and may hang into the cavity by delicate non-cancerous pedicles. In such a case transpleural implantation is seen in an unmistakeable form. So far as my observation goes implantation growths are nearly always most abundant on the posterior parietal pleura near the lower limit of the pleural cavity, though they rather avoid the diaphragmatic peritoneum. Post-mortem records unfortunately give little information on this subject.

Invasion of the lungs.—The lungs showed metastases in only 25 per cent. of the cases I have collected. As a general rule they are invaded by permeation which extends into them either from the pleura or from cancerous bronchial glands. It is rather the exception to find nodular deposits such as might be supposed to result from embolism.

THE PROTECTIVE INFLUENCE OF PLEURAL ADHESIONS.

If transpleural implantation is an important process it should be possible to show that obliteration of the pleural cavity checks dissemination to an appreciable extent. The most convincing evidence on this point will naturally be derived from the late (or Middlesex Hospital) set of cases. Marked pleural adhesions were present in 37 of the 329 cases. Cancerous invasion of the pleura was present in only 11 (30 per cent.) of these 37 cases, while of the sum-total of the Middlesex Hospital cases 44 per cent. showed pleural invasion.

[3] Torök and Wittelshofer: Archiv für Klinische Chirurgie, Band xxv., 1881, p. 873.

[4] Roger Williams: Diseases of the Breast, p. 181.

In three of these 11 cases the adherent pleura on the side of the growth had escaped invasion, while the opposite non-adherent pleura was cancerous.

Doubt may at first sight appear to be thrown on this evidence of the protective action of an adherent pleura by the fact that only 30 per cent. of the cases with pleural adhesions were absolutely free from metastases, as compared with 33 per cent. of the sum-total of cases—an inappreciable difference. But the protective action of an adherent pleura extends only to thoracic metastases. It has been shown that in a large proportion of cases invasion of the abdomen occurs not by way of the thorax but directly through the epigastric parietes. Pleural adhesions do not check this process; perhaps, indeed, their resistance to the deep extension of the growth may accelerate the progress of fascial permeation and so actually favour epigastric invasion. It is a most striking fact that while only 12 per cent. of a total of 329 cases showed the abdomen invaded by cancer and the chest free, 32 per cent. of the 37 cases with marked pleural adhesions showed invasion of the abdomen coexistent with freedom of the thorax from secondary deposits. The converse difference is equally striking. While 22 per cent. of the Middlesex Hospital necropsies show the thoracic cavity invaded and the abdomen free, only 5 per cent. of the cases with pleural adhesions show a similar state of affairs. These facts are a strong indirect testimony both to the protective influence of pleural obliteration and to the frequency of direct epigastric invasion of the abdomen. It is difficult to see how the embolic theory of dissemination can be made to explain them. The possibility of delaying dissemination and of prolonging life by artificially producing obliteration of the pleural cavity is one not to be entirely lost sight of.

DISSEMINATION IN OTHER FORMS OF CARCINOMA.

That permeation is the main factor in dissemination has been proved for some of the few cases of cancer of the breast I have been able to investigate. Outside these cases, for cancer of the breast in general, I have attempted to show that the permeation hypothesis of dissemination agrees with, and is the best explanation of, the peculiarities of metastatic distribution as seen in post-mortem records. If the permeation hypothesis can account for the widely scattered metastases of cancer of the breast it seems *a fortiori* the most likely explanation of the less extensive dissemination seen in most other forms of carcinoma. The distribution of the metastases, which for each form of carcinoma is variable and characteristic, appears to depend chiefly on the lymphatic relations of the primarily cancerous organ. The metastases of cancer of the breast are especially numerous and widespread, partly because of the intimate relations of the breast and the extensive fascial plexus, but also because the breast is favourably situated for the invasion either of the thorax or of the abdomen. The latter cavity, too, is invaded at its summit, whence showers of cancer cells are distributed by gravity over all the organs in relation to the peritoneum.

PRACTICAL CONCLUSIONS.

These must be very briefly stated.[3] If, when it transgresses the limits of the breast, cancer spreads primarily in the deep fascia the main operative aim next, of course, to complete removal of the breast and of the axillary glands, should be the removal of as wide an area as possible of the deep fascia. And if the mode of fascial extension is by centrifugal continuous permeation, the area affected is roughly a circle and the area of fascia removed should also be circular with its centre at the point of origin of the primary neoplasm. The use of the expression "pectoral fascia" to describe the area which requires removal and the almost exclusive attention paid to the axillary glands as the channels of dissemination have led to inadequate excision of the deep fascia in a downward direction over the upper part of the abdomen. In order to prevent epigastric invasion the usual incision should be prolonged downwards over the linea alba for about two inches, the flaps undermined, and the fascia excised as far down as a horizontal line running two inches below the ensiform cartilage, or even lower if the growth is in the inferior part of the breast. I have not found that this step increases the shock of the operation. Excision of the overlying skin and of the underlying muscle must be free but need not be carried out over so wide an area as excision of the fascia, for the extension of the growth to skin and muscle is a secondary process.

Removal of the deep fascia appears to be carried out more thoroughly in this country than elsewhere. In America Halsted, whose valuable work on surgery of the breast is so widely known and appreciated, lays stress rather on the removal of a wide area of skin. To this extent the English operation seems based on sounder pathological principles. At the Middlesex Hospital especially, whence came the first protest by Moore,[4] which was vigorously supported by Campbell de Morgan, and by Nunn, and others of the past and present staff, against the incomplete operations formerly in vogue, excision of the deep fascia is at the present day carried further than has to my knowledge been publicly advocated by any English surgeon, though among others both Jacobson and Watson Cheyne advise very wide excision of this layer. It appears to me, however, that even the widest removal of deep fascia as at present carried out is deficient in the direction of the epigastrium. Owing to the fact that the abdominal muscles arise well above the costal margin, the excision of the deep fascia over the origins of these muscles, a step which forms part of the accepted operation, does not necessarily involve any interference whatever with the epigastric deep fascia, still less such an extensive removal of it as I am at present advocating.

Local and intrathoracic recurrence after the operation for cancer of the breast appears to take place more and more rarely in the practice of experienced surgeons—that is to say, the modern operation seems to afford a maximum of protection so far as the chest is concerned. On the contrary, it appears from statistical records that the operation for cancer of the breast as at present usually performed does not by any means give the maximum attainable security against *abdominal* recurrence. For while modern results show a diminution in the sum-total of cases of recurrence cases of purely abdominal recurrence seem to be increasing in frequency relatively to the lessened number of thoracic recurrences. And this phenomenon is clearly seen only in the results of the more successful operators—i.e., of those whose methods enable them to guard against thoracic invasion.

Only last week I had the opportunity of seeing a patient whose right breast was removed for cancer 28 months ago by a surgeon of large experience in the surgery of the breast. Subsequently the disease recurred in the opposite breast which was removed by another surgeon. Even at the time the second breast was removed the patient was beginning to suffer from pain in the left ovarian region. At the present time there is no local recurrence but the pelvis is filled by cancerous masses and per vaginam an ulcerated growth can be felt indistinguishable from a primary carcinoma of the cervix. The mammary operation scars reach downwards only to a point two inches above the tip of the ensiform cartilage and it therefore seems unlikely, even allowing for their contraction, that the deep fascia of the epigastric region was removed at the time of operation. It is my opinion that in this case the pelvic mass of growth resulted from epigastric invasion and was not a second primary carcinoma. During the past few weeks I have heard, through Mr. C. J. Symonds and Sir Alfred Fripp, of three other cases of exclusively abdominal recurrence, in one of which palpable subcutaneous nodules were present in the epigastric region.

The relative excess of abdominal recurrences associated with modern methods of operation is strikingly exhibited in the cases, upwards of 100 in number, published by Professor Watson Cheyne. Visceral recurrence took place in 15 cases. In ten of these cases the recurrence was (clinically) abdominal, while in only five was it (clinically) thoracic. It seems to me almost certain that in some of these cases abdominal recurrence might have been prevented by a wider excision of the deep fascia in the epigastric region. I will therefore conclude by expressing the hope and, indeed, the firm belief, that a recognition of the danger of epigastric invasion and the adoption of precise means for its prevention will bring about a further appreciable reduction in the mortality from mammary carcinoma.

[3] See Handley, "On Certain Defects in the Present Operation for Mammary Carcinoma," Brit. Med. Jour., Oct. 1st, 1904.

[4] Moore: Transactions of the Royal Medical and Chirurgical Society, 1867.

The Goulstonian Lectures

ON

SOME CONSIDERATIONS ON THE NATURE OF DIABETES MELLITUS.

Delivered before the Royal College of Physicians of London on March 16th, 21st, and 23rd, 1905,

BY W. CECIL BOSANQUET, M.A., M.D OXON., F.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO CHARING CROSS HOSPITAL AND TO THE BROMPTON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST; FORMERLY FELLOW OF NEW COLLEGE, OXFORD.

LECTURE III.[1]

Delivered on March 23rd.

MR. PRESIDENT AND GENTLEMEN,—In my first lecture I ventured to suggest that the essential nature of diabetes mellitus, as opposed to mere symptomatic glycosuria, consisted in an internal formation of sugar from the tissues of the body, while the liver had nothing to do with this condition, being responsible only for a possible aggravation of the existing symptoms by temporary increase of the sugar existing in the blood and thence appearing in the urine. In my second lecture I pointed out some of the reasons which exist for believing that defect in the pancreas is responsible for diabetes. I also mentioned that suggestions had been made with regard to a possible interaction between the pancreas and other organs in the process of regulating the formation and destruction of sugar and dealt with the question of the alleged action of the liver in this respect. Two other organs must also be alluded to as suggested partners with the pancreas—the suprarenal body and the thyroid gland.

The suprarenal body.—The hypothesis of a joint action of this gland with the pancreas is supported by definite experimental evidence and a special form of diabetes, the *Nebennierendiabetes* of the Germans, has been supposed to exist. Experiments show that the injection of suprarenal extract is followed by the appearance of sugar in the urine and the condition is seemingly very similar to true diabetes. The sugar may appear in the urine even when the animal receives only a proteid diet. Feeding by the mouth with suprarenal extract does not produce glycosuria, and subcutaneous injection of it is less efficacious than intraperitoneal. Croftan has called attention to the pigmentation of the skin which occurs in hæmochromatosis as well as in Addison's disease, and has used this resemblance as an argument in favour of a connexion between the suprarenal body and diabetes. Since, however, glycosuria does not usually occur in Addison's disease it is clear that it is not defect in the function of the suprarenals which leads to glycosuria, whereas it is with such defect that pigmentation seems to be connected; hence the argument does not seem valid. On the other hand, an excessive action of the suprarenal might conceivably be responsible for diabetes as experiments suggest. The secretion of these glands when artificially injected appears to act upon the pancreas and to induce glycosuria secondarily. Thus, it is found that painting the extract upon the pancreas is followed by an excretion of sugar, whereas similar application to the liver or spleen is not productive of the same result. Curiously enough, the surface of the pancreas when thus treated is stated to become pink and hyperæmic instead of blanched, as is the case with other parts which are similarly treated. The property of inducing glycosuria when applied to the pancreas is not, however, confined to suprarenal extract but is exhibited by other reducing agents, such as sulphurous acid, ammonium sulphide, coal-gas, carbonic oxide, &c., so that it is to the reducing action of the suprarenal secretion and not to any specific effect that the appearance of the glycosuria is to be attributed. It is, indeed, said that in fatal cases of poisoning by an overdose of suprarenal extract the cells of the islands of Langerhans are the seat of granular degeneration, while the other cells of the pancreas are not equally affected, but this statement needs confirmation. In any case, the peculiar effect of the secretion of the suprarenal body in producing glycosuria must be attributed to its action on the internal secretion of the pancreas, and there is no evidence that in spontaneous disease any overaction of these bodies takes place or that they are in any way connected with the origin of diabetes mellitus.

The last organ which has been supposed to exert a joint action with the pancreas in destruction of sugar is the *thyroid gland*. Its claims have been urged recently by Lorand of Carlsbad in a lengthy monograph on the production of diabetes. This writer states that in diabetic patients the thyroid is often markedly enlarged—a condition which is not, so far as I know, generally noted in text-books as a symptom of the disease and which I have not personally observed in these cases. He further points to the frequent presence of sugar in the urine of patients suffering from Graves's disease; to the onset of this condition as a result of fright or mental stress—factors which may act as causes of diabetes; and to the sweating which some diabetics exhibit, resembling the sweats so common in Graves's disease, which also may be accompanied by pruritus, pigmentation of the skin, and psychical phenomena. All the symptoms of diabetes can be induced, according to Lorand, by administration of excess of thyroid extract. He considers that the thyroid, the pituitary body, the suprarenal bodies, and possibly the testes and ovaries are all vascular glands (*Blutgefässdrüsen*) and that the islands of Langerhans in the pancreas are also to be placed in this class. All these structures are correlated in function, and defect of one of them produces alterations in the others. Thus in cases of Addison's disease the pancreas is often, he affirms, large and hyperæmic, while the thyroid is small and atrophic. He thus brings myxœdema and Graves's disease, acromegaly, Addison's disease, and diabetes into one group of disorders depending upon alterations in the vascular glands—a sufficiently heterogeneous collection, though perhaps hardly equal to that embracing gout and rheumatism, epilepsy, Raynaud's disease, megrim, hysteria, Bright's disease, chlorosis, and diabetes itself, seriously maintained by one of the Fellows of this College to be all due to poisoning with uric acid introduced with the food (Haig). Lorand states that it is chiefly in female diabetics that actual enlargement of the thyroid is present; though why the other sex should not also exhibit the same alteration is not clear. He further says that post mortem the gland is soft and that the amount of colloid substance present in it is increased. He quotes some other writers who have found changes in the gland; thus, Rosenfeld noted them in three cases out of 15, while Bachstein and von Noorden record the existence of enlargement in different proportions of their cases. Some support, perhaps, is lent to Lorand's views by the experiments of Knopfelmacher, who examined the alimentary capacity in regard to assimilation of sugar in two patients suffering from congenital myxœdema; he found that the assimilative power for sugar was much greater in these cases than in normal persons. Lorand also claims to have obtained good results in the treatment of diabetes by the use of milk derived from animals which had undergone thyroidectomy. It would thus seem that the presence of sugar in the urine may in some cases be connected with an over-activity of the thyroid gland. There does not seem to be sufficient evidence that this organ is at fault in true diabetes. In a case which I recently examined the thyroid gland appeared quite normal both in size and structure. I also remember reading an account of a case in which diabetes coexisted with myxœdema though I cannot put my hand upon the reference. It is, however, desirable to pay careful attention to the condition of these vascular glands in necropsies upon diabetic cases in order to ascertain the frequency with which pathological changes occur in these parts.

PATHOGENY.

I have now to consider some of the views which have been held as to the pathogeny of the disease—the actual mode of production of the defect in metabolism which constitutes diabetes—and to bring before you any facts which appear capable of throwing light upon the difficult problems involved. In the first place, if we ask in what way the pancreas exercises an influence upon the production or assimilation of sugar, it must be confessed that its mode of action is not by any means clear. Two alternatives

[1] Lectures I. and II. were published in THE LANCET of April 8th (p. 903) and 15th, 1905 (p. 977), respectively.

were originally suggested by von Mering and Minkowski: (1) that the pancreas forms an internal secretion necessary for the regulation of the sugar-forming and destroying activities of the organism; and (2) that it may neutralise some poisonous material formed elsewhere, which acts injuriously upon these processes. The authors just named discarded the latter theory and adhered to the former. The pancreas would thus come into the same category as the thyroid gland, the existence of an internal secretion from which is now definitely established, and with the ovaries, testes, suprarenal bodies, pituitary body, and thymus in the case of which an internal secretion remains hypothetical, possessing varying degrees of probability in the cases of the different organs mentioned. It may be remarked that it is not the fact of the existence of an internal secretion in these cases which is questionable, for every organ and tissue in the body must in one sense form an internal secretion, inasmuch as it casts off into the circulation substances formed in its life processes—waste products in fact. The question is as to the usefulness of the materials thus formed to other parts of the body. In the case of the thyroid the useful character of its secretion has been most conclusively demonstrated by the results of feeding myxœdematous patients with the substance of the gland. Unfortunately this proof does not exist in the case of any of the other glands in question—possibly because the digestive juices destroy the substances manufactured by them. In the case of the pancreas an instance is, indeed, reported by Wegele in which the use of pancreatic extract caused cessation of glycosuria in a case of apparent diabetes with fatty stools. It is interesting to note that in this instance alimentary glycosuria remained after the treatment, a fact which may afford some support to the view which I have suggested that alimentary glycosuria and diabetes are in many cases quite independent processes. It is held by most authorities that in cases of mere alimentary glycosuria no alteration can be made out in the pancreas (Wille).

Now, in endeavouring to elucidate the possible action of the pancreas upon metabolic processes it is natural to seek to associate it with views recently set forth as a result of study in quite a different field of pathology—namely, that of infection and immunity. The whole subject of immunity was exhaustively discussed two years ago by Grünbaum in his Goulstonian lectures and I need not do more than allude to the salient points which bear upon my present subject. In the first place it is found that when bacteria enter the circulation, or when blood corpuscles from one species of animal are injected into one of another species, these intruders are destroyed by the interaction of two distinct bodies, one of which—the alexine or complement—exists naturally in the serum of normal animals, while the other—the copula or immune body—is formed in response to the stimulus of the injected foreign material. The use of the second body seems to be to unite the alexine to the intruding bacterium or corpuscle and thus enable it to destroy the latter.

We are here introduced to chemical actions of great complexity in which three or more bodies take part, as contrasted with the simpler reactions of non-vital chemistry in which two bodies are generally concerned. We may compare with the processes sketched above that of the coagulation of the blood, in which it has long been known that three or more substances take part—the fibrinogen, the fibrin-ferment and calcium salts; or the action of the digestive ferments, pepsin and trypsin, in the presence of acids and alkalies respectively; or the curious interaction between pancreatic secretion and intestinal juice, in which the inert protrypsin is rendered active by enterokinase. One is tempted to speculate whether we may here be in the presence of a general law of vital chemistry, by which a complicated reaction between three or more bodies—one of which is generally a ferment—is substituted for the simpler interchanges in non-living materials.

Further, in studying the formation of antitoxins Professor Ehrlich was led to formulate his well-known hypothesis of side-chains or receptors. According to this living cells consist of a central mass of protoplasm to which are attached outlying groups of molecules (side-chains or receptors) having the property of entering into combination with bacterial toxins. Now, since it would obviously be better for an organism to possess no receptors capable of uniting with toxic molecules we cannot suppose that the side-chains exist for the purpose of combining with these. It is therefore held that they are primarily intended for the assimilation of food molecules and are only accidentally capable of uniting with toxins. It thus seems possible that the assimilation of sugar by the tissues is carried on by some process allied to the union with toxins. The phenomena of diabetes may thus some day be brought into line with these observations in one of several ways.

1. In the first place, a view very commonly held is that the disease consists in a defective power of assimilating sugar, the defect residing in the tissues throughout the body. It would appear at first sight tempting to suppose that the connexion of the pancreas with diabetes lay in the formation by it of some copula by which molecules of sugar are anchored to the cells; if this be not supplied the assimilation of sugar will then be no longer possible. An analogous defect might be supposed to exist in myxœdema, the thyroid gland here failing to supply an intermediary substance necessary for the utilisation of some other form of cellular pabulum. I do not, however, think that this is the true explanation for more than one reason. In the first place there does not seem to be any convincing evidence that such failure in the assimilation of sugar by the tissues actually exists. The presence of fat-droplets in the muscles and elsewhere may indeed be pointed to as evidence of lack of normal assimilative powers but it can be otherwise explained. Secondly, as I previously suggested, it seems certain that in the terminal stages of diabetes sugar is formed from the tissue cells and it seems preferable to apply this explanation of the excess of sugar present in the blood to the whole course of the disease. Defect in the formation of an intermediary body would not explain this phenomenon.

2. We may, however, consider in this connexion the hypothesis advanced by Lépine, who explains the phenomena of diabetes by the absence from the blood of a sugar-splitting ferment which it normally contains. He finds that healthy blood possesses the power of causing the disappearance of a certain amount of the contained sugar when it is allowed to stand. Diabetic blood, on the other hand, possesses this property to a notably less degree according to this observer. Croftan has supported Lépine's observations of a power of destroying sugar resident in the blood and lymph. He states that the glycolytic power of the blood is diminished after removal of the pancreas. He also claims to have isolated the ferment by which this action is performed and to have identified it with trypsin. He finds that in the presence of hæmoglobin trypsin has the power of destroying sugar, but apart from the former the normal pancreatic juice has not this property. The glycolytic ferment of these writers would be analogous presumably to an alexine rather than to a copula. Croftan considers that it is formed by the pancreas. Other observers have, however, pointed out that the glycolytic power of the blood increases after it has coagulated, thus appearing to be a non-vital phenomenon, while the process depends to a considerable extent upon the amount of water present in the blood (Biernacki), so that the failure of diabetic blood to destroy sugar may be dependent upon its concentration. Umber found that the glycolytic power of the blood was not increased in the pancreatic vein, as it would have been had the pancreas formed the destructive body. With regard to the glycolytic power of the tissues Giacco found that it varied in different organs, being great in the heart and little in the pancreas. He also found that it remained after boiling the tissue and so was not a vital action. It is interesting to note, in view of the acid poisoning which exists in diabetes, that according to this observer alkalies increase the glycolytic property while acids diminish it.

3. If the action of the pancreas, then, is not in the direction of assisting in the utilisation of sugar, there remains the suggestion that it in some way neutralises or destroys a poison which either interferes with some part of the process by which sugar is assimilated or increases the formation of sugar within the body. This the pancreas might do by absorbing the poison and using it for its own metabolic processes, or by forming an antitoxin which would meet and neutralise the toxin in the blood. In the latter case we should again be in presence of a phenomenon analogous to those supposed to occur in bacteriolysis and immunity. Once more it must be confessed that the evidence in favour of a toxic origin for diabetes is hopelessly scanty; yet there are a few indications pointing that way, and in the state of darkness which prevails as to the pathology of this disease the smallest ray of light is better than none. In the first place we have the undoubted fact that experimentally

certain poisons are capable of producing a condition closely resembling diabetes—indeed, as far as we can see, identical with it. The most notable instance—that of phloridzin poisoning—has already been referred to, but other substances, such as diuretin and uranium nitrate, may also produce at least glycosuria, while the effect of suprarenal extract and other reducing substances applied to the pancreas has just been mentioned.

With regard to the actual presence of poisons in diabetes very little direct evidence has been brought forward. Klemperer was apparently the first to suggest that there was present in the disease a poison which interferes with the oxidation of sugar. This hypothesis has been revived by Leo. Long ago Minkowski made experiments to investigate the matter by injecting the blood of a dog rendered diabetic by removal of the pancreas into a normal dog, but the result was negative and indeed was so almost of necessity, since even if the blood of the diabetic dog contained a poison which ought to have been neutralised by its pancreas, yet the normal dog possessed a pancreas capable of dealing with the poison. Lépine injected guinea-pigs with a watery solution of the blood of a diabetic dog and produced a glycosuria lasting for some days, whereas a similar experiment with the blood of a normal dog produced only a very transitory appearance of sugar. From this he concluded that the diabetic organism contains special leucomaines or toxins of internal manufacture. On the other hand, injections of blood derived from pneumonic patients seemed to have a similar power of inducing glycosuria, so that the value of the experiment does not seem very high. Further, the injection of pancreatic emulsion or extract does not seem to influence the condition of animals who have suffered experimental pancreatectomy. The attempt to associate diabetes with an infective micro-organism has—one might say, of course—been made. Topfer and Freund injected animals with the contents of the intestines of diabetic patients and thereby produced a lasting glycosuria; and Hammerschlag and Kauffmann obtained bacteria from the intestines of diabetics and produced a similar result by feeding experiments and by intravenous injections of the organisms. These experiments are not very convincing. It is easy to set up glycosuria in animals in many different ways and there does not seem to be evidence in any of the experiments that a condition analogous to diabetes mellitus was produced. As previously mentioned, there is little evidence that in man diabetes is an infectious malady; even Hutinet, who maintains the possibility of infection, believes that diabetes is a secondary result dependent upon the production of arterio-sclerosis.

On the whole, then, while there is reason to suspect that diabetes may be due to the action of some toxic substance formed within the body, which is normally neutralised or destroyed by the pancreas, nothing approaching to proof of such a substance or such a condition has so far been established.

Acid intoxication.—There remain to be considered one or two sides of the question of diabetes which may throw light upon the nature of the process. The first of these is the so-called acid intoxication which forms so characteristic a feature of the graver cases of the malady. In this condition the alkalinity of the blood is diminished owing to the formation in the system of acid substances which combine with the alkali present in the body fluids. Coincidently, and apparently as a result of the increase of organic acids present, there is given off some excess of ammonia which combines with these and is excreted in this combination in the urine. An increased amount of ammonia in the urine is thus characteristic of acid intoxication. The acids formed appear to be chiefly oxybutyric, amido-butyric, aceto-acetic, and others perhaps belonging to the same series, which is intimately connected with the volatile substance, acetone, which gives the sweet smell to the breath of diabetic patients. Acetone is said to occur normally in the urine in minute quantities, too small to be recognised by ordinary clinical tests; but in diabetes it is much increased, and almost as much may be eliminated by the lungs as by the urine. It is accompanied in the latter fluid by aceto-acetic acid which gives the characteristic red colour with perchloride of iron. Acid intoxication may occur in other conditions besides diabetes, though it is most profound in this disease. Thus a certain degree is seen in the summer diarrhœa of children, in starvation, and in many fevers. Acetone is also increased in the urine after the administration of ether and chloroform. In all of these conditions, however, it seems to be a feature of no clinical importance; in diabetes it is of very grave urgency, being the forerunner of the fatal coma which terminates so many cases.

An alkaline reaction appears absolutely necessary for the existence of vital activities in the tissues and grave disturbances of nutrition soon occur if an animal is caused to lose alkali which cannot be replaced from the food. Bunge considered that the toxic substance which accumulates in the body in such cases of withdrawal of alkalies is sulphuric acid. The condition would thus be equivalent to sulphuric acid poisoning. If acids in excess are administered to animals respiration increases in frequency and the pulse-rate rises. Finally, ataxy and convulsions occur and the animal dies in coma. It seems that carnivorous animals are more tolerant of acids than are the herbivora, apparently owing to the greater amount of ammonia which they are capable of forming from their proteid diet. Mankind are capable of dealing with a large quantity of acid in this way.

Excess of acid may occur in the system in two ways: either by failure to excrete that which is normally formed, with resulting accumulation in the blood; or by increased manufacture of acid by chemical processes within the tissues. With regard to the former possibility it is conceivable that lesions of the kidney may at times cause accumulation of toxic substances in cases of diabetes and may thus sometimes precipitate the onset of coma. I alluded in my first lecture to the intense degeneration of the renal tubules which I found in a recent case which died comatose. The sudden onset of coma in some instances could be better understood on such a hypothesis than on that of the gradual accumulation of acids by increased manufacture alone. But such renal lesions are not the invariable rule. In any case the presence of acids appears to be due to formation by the tissues. Von Noorden mentions among acids which may be formed in the body sarcolactic, carbaminic, aliphatic, oxalic, uric, and others, besides those previously mentioned which are most to the fore in diabetes—β-oxybutyric and aceto-acetic (diacetic), related to each other and to acetone.

Coma.—The interest of the series of bodies just alluded to—the acetone series—in diabetes is very great, since it is to one or more of them that attempts have been recently made to assign the causation of diabetic coma. Two older theories may be mentioned as of historical interest. One is that coma is due to a fat embolism of the lungs, arising from the presence of excess of fat in the blood in cases of diabetes. This hypothesis seems untenable for more than one reason. In the first place, liphæmia is not by any means of constant occurrence in diabetes and is not found in all or nearly all cases dying from coma; while it is very doubtful whether fat circulating in the blood in the form of fine droplets, as it does in such conditions, is capable of producing embolism of even capillary vessels, since fat is practically fluid at the temperature of the body and is probably thus able to pass through any vessels to which it is conveyed. The existence of fat-globules in the capillaries of the lungs can, it is true, be demonstrated in some instances; but this is after death when the fat has solidified. There is no proof that the fat has been previously arrested in the capillaries and has thus blocked them. It is not impossible that the lungs may act as the mechanism in such cases for removing excess of fat from the blood, a process of oxidation taking place within them. The second view to which allusion may be made is that diabetic coma is due to accumulation of carbon dioxide in the blood owing to insufficient absorption of oxygen; coma would thus be a form of asphyxia. This view seems negatived by the experiments which have been performed to ascertain the respiratory exchange in diabetics. Recently Pembrey, Beddard, and Spriggs have investigated this in cases of diabetic coma and have satisfactorily shown that defective respiratory exchange can be eliminated as a cause of the condition.

To return to the acetone bodies, the first attempt to connect these with diabetic coma was in the direction of identifying acetone with the toxic body at work. This view was sustained by von Jacksch and others. Experimental injection of considerable amounts of acetone into animals and inhalation of this substance gave rise to a condition of stupor and sometimes to glycosuria. On the other hand, acetone can be given in large quantities by the mouth without giving rise to any ill-effects; and subsequent observers repeating the experiments and studying the production of acetone normally in the body were led to attach little importance to the production of acetonæmia as the cause of coma. Attention was next turned to β-oxybutyric

acid as a possible cause, but in the case of this substance also it was found that it could be taken in large amounts without the production of injurious effects; and that it was tolerated even by animals which had been deprived of their pancreases. Such ill consequences as ever ensue after its administration are now assigned to its acid qualities alone, whereby it withdraws a certain quantity of ammonia from the body to neutralise it (von Noorden). Other authors have laid stress upon the presence in diabetic coma of other acids, especially β-amido-butyric acid; but it is now generally held that there is no reason to associate any one substance with this condition, which appears to be dependent upon the general fall in the alkalinity of the blood.

Source of acetone bodies.—Now in view of the importance of the acid intoxication which is present in severe cases of diabetes it is necessary to inquire as to the source of the substance by which it is produced. Since aceto-acetic acid and oxybutyric acid are apparently intermediate products which in normal circumstances are excreted as acetone inquiry may conveniently be directed to ascertain the source of this last. In the first place, experimental investigation has shown that the addition of butter to the diet leads to an increased excretion of acetone, so that it would seem likely that it is a product of the disintegration of fat, which is supposed to enter the system practically unchanged by digestive processes. Consumption of other fats may have a similar effect to that produced by butter. In the second place, the chemical composition of the acetone bodies forcibly suggests an origin from fat, since oxybutyric acid ingested may be excreted as acetone and the relationship of this acid to fat (butter) is sufficiently indicated by its name. A consideration of the chemical formulæ of the substances involved will make the relationship clearer. Glyceryl tributyrate, a typical fat, may be represented as—

$$C_3H_5 . (CH_3 - CH_2 - CH_2 - CO_2)_3.$$

The figures in the brackets represent the formula of butyric acid—

$$H . (CH_3 - CH_2 - CH_2 - CO_2).$$

By substituting in this formula OH for one of the atoms of hydrogen we obtain β-oxybutyric acid—

$$H . (CH_3 - CHOH - CH_2 - CO_2).$$

By combination of the two atoms of hydrogen in the second group with one of oxygen aceto-acetic acid and a molecule of water are formed—

$$H . (CH_3 - CO - CH_2 - CO_2) + H_2O;$$

and by the removal of the last group (CO_2) from this we obtain acetone,

$$CH_3 - CO - CH_3.$$

It would appear, further, that the acetone bodies are formed within the system, not in the intestinal canal, for although small quantities of both acetone and oxybutyric acid have been demonstrated in the contents of the stomach and intestines the administration of purgatives which rapidly clear out the intestinal contents does not diminish the quantity of acetone in the urine; indeed, von Noorden states that it may occasionally even increase it. The acetonuria which occurs in pregnant women is attributed by Stumpf and Stolz to the increased destruction of fat which takes place in the maternal organism and that which sometimes accompanies death of the fœtus has been supposed by Waldvogel to be caused by destruction of fat resulting from the action of toxins absorbed from the uterus. In the absence of evidence to the contrary, then, we are justified in believing that the acetone series of substances is produced within the body from fat. This conclusion appears consistent with the conditions present in the various pathological states in which acetone and its congeners are found to be increased. Thus they are excreted in greatly increased amount in states of starvation in which there is great wasting of the body and in which it has been shown by experiment that the tissue which suffers the most severely is the adipose. A similar explanation would seem to apply to the acetonuria of fevers, of diarrhœal conditions, and of advanced carcinoma, in all of which the fat is suffering serious reduction in quantity. Acetonuria is also seen sometimes as a result of the administration of anæsthetics. Now the two substances most frequently used for narcosis are ether and chloroform, and both of these are capable of dissolving fat outside the body; it is only reasonable to suppose that when they are absorbed into the system they may also be capable of acting upon the adipose tissues.

It is true that von Noorden and Mohr deny the possibility of the acetone bodies formed in diabetes resulting from destruction of fat, although they admit that such destruction commonly takes place in this disease. "This factor," they say, "could only explain the excretion of moderate quantities of acetone not the enormous quantities of acetone bodies that severe cases of diabetes frequently eliminate." They do not, however, support this assertion by any evidence and it is not easy to see on what grounds it is founded, since the quantity of fat that is undergoing destruction at any moment in a case of diabetes must, in the present state of our ignorance, be entirely conjectural. The whole of the argument as set forth by von Noorden and Mohr supports the derivation of the acetone bodies from fat, and it is clear that they are formed within the body, not in the alimentary canal. It may be admitted that the acetone could not all be formed from fat used as food; but there is nothing to show that it is not formed from the fat in the tissues.

Von Noorden attributes the presence of increased acetone in the urine to diminution in the amount of carbohydrate matter in the diet and quotes actual cases in which a great diminution of the acidosis occurred as a result of adding some carbohydrate to the restricted diet of diabetic patients. This is in accordance with the tendency of the present time in the treatment of diabetes not to put patients on so severely restricted a diet as in days gone by; and there seems no doubt that this procedure constitutes a definite advance; while the sudden cutting off of carbohydrates from a diabetic's diet has almost certainly before now resulted in the onset of coma. But, on the other hand, all physicians must be acquainted with cases which have exhibited acetonuria when they first came under treatment but which lost this symptom as a sequel of being put upon a more restricted diet (cf. Herter). It seems not impossible that such concomitant conditions as rest in bed may have some influence upon this phenomenon. Von Noorden himself admits that in diabetes the excreted acetone may suddenly decrease and then increase again without reference to the amount of carbohydrate food taken. At the same time it is quite in accord with the theoretical possibilities that defect in carbohydrate food should lead to some increased destruction of the fat in the body, to make up for the loss of a material which is not only important as a source of energy but is probably itself capable of being stored up—if not actually absorbed as Pavy maintains to be usually the case—in the form of fat.

Source of sugar.—Lastly, we have to consider the question of the source of sugar in diabetes. With regard to this question, attention had been chiefly directed to the possibility of the formation of this substance from the different categories of food materials. Thus it seems to have been satisfactorily established that sugar is excreted whether carbohydrate is given or proteid or fat is substituted. From this it is concluded that sugar is formed by the diabetic organism from all these kinds of food. I venture to suggest that to allege these experiments as a proof that all these materials are capable of being converted into sugar is to be guilty of the fallacy of proving too much. Is it not more probable that what is actually occurring is that the diabetic organism is continually forming sugar out of some of its own tissues, and continues to do so whatever kind of food is administered, than that by some extraordinary perversion of chemical change all these diverse materials are converted into sugar? We ought at all events to consider the more simple explanation very carefully before we reject it in order to adopt the more difficult, especially in the presence of the fact upon which I have already insisted to a degree which I fear may become tedious, that in the final stages of diabetes this internal formation of sugar is admitted to occur.

If we inquire what are the tissues which break down into sugar under these conditions the answer is not easy. It is generally assumed that it is the proteid or protoplasmic substance of the body, in view of the fact that the nitrogen excreted in the urine is increased and that this increase is to some extent proportional to the amount of sugar. Recently Baer has published some observations upon the subject, based on experiments made upon dogs poisoned with phloridzin, showing that the quantities of sugar, of acetone, and of nitrogen excreted, if graphically represented, follow very similar curves. Seeing, however, that the acetone is in all probability formed from fat, not from proteids, and

yet follows a curve similar to that of the nitrogenous excretion, we have no right to conclude on this ground that the source of the sugar is the proteid of the body. The increased excretion of nitrogen may be connected with the breaking down of proteid as a consequence of the acid intoxication.

Mandel and Lusk also maintain that sugar is derived from proteid, finding in a case which they studied a constant ratio of dextrose to nitrogen in the urine. On the other hand, Lépine states that diabetics may excrete more sugar than is accountable for either by their diet or by destruction of their proteid tissues and concludes that some of the sugar is formed from fat. With regard to this suggestion it may be observed that it seems illegitimate to assume a double source for any substance appearing in the body until it is shown that its presence cannot be accounted for without such an assumption; in other words we must not lightly suppose the existence of two separate chemical reactions leading to one and the same result until it is shown that neither one alone is sufficient to explain the phenomenon. If some of the sugar is formed from fat, may not it all be thence derived? Theoretical considerations lend considerable support to this suggestion. It the first place, of all the substances within the animal body with the exception of glycogen fat is probably the most nearly allied to sugar. From the point of view of theoretical chemistry the conversion of fat into sugar would seem to present no insurmountable difficulty. The glycerine radicle of fat may be represented by the formula:—

$$C_3H_5(OH)_3 \text{ or } \begin{cases} CH_2OH \\ CHOH \\ CH_2OH \end{cases}$$

By a series of substitutions of the group CHOH for one of the atoms of hydrogen we might theoretically get a substance:—

$$\left.\begin{matrix} CH_2OH \\ CHOH \\ CHOH \\ CHOH \\ CHOH \\ CHO \end{matrix}\right\} \text{ or } C_6H_{12}O_6$$

—a typical sugar. Secondly, the production of sugar from fat has been experimentally demonstrated outside the body by Abderhalden and Rona, who showed that if a mixture were made of liver tissue and blood with fats and oils some of these last were converted into sugar. Thirdly, some experiments performed by Lüthje appear to prove that glycerine administered as food to animals may be converted into sugar within the system. It seems certain, therefore, that glycerine formed internally may undergo the same transformation. That a liberation of glycerine takes place in pancreatic disease seems proved by the observation of Cammidge that it may appear in the urine under such conditions. This observation, however, constitutes a somewhat two-edged argument, since if some of the glycerine formed within the body is excreted unchanged it might be asked why some should be converted into sugar. Fourthly, of the possibility of the conversion of fat into sugar within the body there seems no doubt, since it has been shown that in hibernating animals, such as the marmot—taking no food but merely absorbing a small amount of oxygen—there occurs an increase of the glycogen of the liver, with a corresponding decrease of the fat. The fat must, therefore, have been converted into glycogen, and the further step to sugar is easy.

If the origin of sugar from fat be really existent in diabetes it is of interest to note that both the substances most characteristic of the disease—the sugar and the acetone bodies—will be derived from destruction of the same tissue, the acetone bodies arising from the fatty acid and the sugar from the glycerine radicle of the fat. It is possible to bring forward various subordinate considerations drawn from the phenomena of natural and experimental diabetes to corroborate the suggestion of a disturbance of fat as the basis of the disease.

1. In the first place, the experiments made by Rosenfeld upon dogs which had been poisoned by phloridzin—experiments to which I have already alluded—suggest a serious disturbance of the adipose tissue in this condition, which is closely similar to diabetes. In phloridzin poisoning it seems possible that the fat is discharged into the blood from the stores of it existing in different parts of the body and is then taken up by the liver. It must, however, be admitted that all the phenomena of phloridzin poisoning are as yet inexplicable upon this or any other theory.

2. That a marked disturbance of the body fat takes place in dogs which have been deprived of their pancreases is shown by some experiments of Lombroso. This observer was investigating the absorption of fat from the intestines in animals in which the pancreas had been removed and he found that more fat was excreted in the fæces than was given in the food; in other words, there existed an intestinal excretion of fat derived from the pre-existing fat in the body. Here, too, it is clear that there must be a breaking down of the adipose tissue within the body of the animals. These two conditions—phloridzin poisoning and removal of the pancreas—are the two most obvious forms of experimental diabetes; the probability that any special lesion which exists in both of them is also present in the natural malady is very considerable.

3. But there are other phenomena pointing this way in diabetes itself. Thus, it is not very rare in it to find that the circulating blood is loaded with fat (liphæmia). This may occur in other conditions but it is most frequently met with in diabetes and is most marked in such cases. It is reasonable to suppose, in view of the conditions just alluded to as existing in experimental animals, that here, too, we have a rapid destruction of fat cells which not only give rise to sugar in the process of disintegration but allow a certain proportion of their contents to escape unchanged into the blood.

4. In starving persons (tramps) and animals glycosuria is frequently met with (Hofmeister, Hoppe-Seyler). Under the same conditions it is found in animals that the fat content of the blood is increased (Fischer). This would appear to be another instance of a condition in which breaking down of fat is associated with glycosuria, while, as previously mentioned, the acetone in the urine is also increased in starvation, so that the parallel with diabetes is very close.

5. Further, in diabetics it is not rare to find a fatty liver and the kidneys usually contain in their tubules some quantity of fat. Fat is often found lying between the fibres of the muscles. This fat may be simply taken up from the blood in which it exists in excess of the requirements of the tissues.

6. The special cutaneous affection associated with diabetes—xanthoma—appears to consist in an accumulation of fat in the skin.

7. The relationship of diabetes to obesity may perhaps be alluded to in this connexion, though it scarcely affords evidence in favour of the hypothesis. Still the coincidence of the two conditions is of interest. Fat diabetics, as a rule, suffer comparatively little from their malady. It is possible, on the one hand, that many of them are not true diabetics but rather glycosurics. Such patients suffer probably from no pathological destruction of fat due to deficient pancreatic secretion, but they may in presence of the increased amount of fat in their connective tissue produce by its normal disintegration an abnormal amount of sugar; for it is not impossible that the excessive destruction of fat in diabetes—like so many, if not most pathological processes—is only a quantitative change in a normal process; in other words, that some breaking down of fat into sugar is a constantly occurring change natural to the organism, but that it is increased to a harmful extent in diabetes owing to loss of the regulating action of the pancreas. On the other hand, in fat persons who become the subjects of true diabetes, the supply of fat to start with being larger, they will be able to hold out longer against the drain of fat.

8. Lastly, the benefit derived in many cases from the use of fat in the diet may be connected with the destruction of the natural fat of the body produced by the disease.

Each of these indications taken separately amounts to very little, but collectively they may possess a greater weight than the mere arithmetical sum of their individual values. But if diabetes be really due to the action of a poison which causes a breaking down of adipose tissue, it might not improbably also induce some defect in the processes by which these cells assimilate fat. It they are poisoned, they will act less efficiently in the direction of fulfilling all their functions, anabolic as well as catabolic. It may be that in the early stages of the disease the defect is most manifested in defective storage of fat; later, in actual destruction of existing fat. If this be so, a bond will be established between the alimentary and the composite forms of the malady, without the necessity for the sharp distinction which

I emphasised for the sake of the argument in my first lecture.

Of the mechanism, if it be so called, of the storage and distribution of fat little seems to be known. It seems to be established, however, that cells of connective tissue do not directly swallow droplets of fat but that they break down the fat into some soluble material and absorb this, reconstructing fat within their own bodies. In the same way it is stated that in normal circumstances the fat within a cell is not directly discharged into the surrounding fluids, though this occasionally takes place; more often an analysis and a synthesis of the fat are effected, similar in all probability to those by which the process of storage was performed. It is not a very wild conjecture to suppose that the intermediate soluble substance in each process is either sugar or some closely allied substance while the comparatively rare direct discharge of fat from the cell may take place to an excessive extent in cases characterised by the appearance of liphæmia.

I would make no pretence to conceal the fact that the argument which I have set forth with regard to the source of sugar in diabetes is highly speculative and has little actual evidence to support it. It is quite possible, on the other hand, that since the protoplasmic constituents of the body contain both carbohydrate and fatty elements it may be by disintegration of proteid that sugar and even acetone are formed. The parallelism of the excretion of sugar, acetone, and nitrogen seems to point in this direction and the phenomena of phloridzin poisoning and starvation are susceptible of explanation on this basis. Lépine's observations are, however, important. The whole question is one which time and continued observation and experiment must be left to answer. At present, in spite of the immense amount of work which has been done on this subject, the results are contradictory and inconclusive.

Finally, if diabetes be due to the action of a poison which is normally neutralised by the pancreas, we are in the presence of two factors which interact to produce the disease. It is conceivable that in some cases the poison may be produced in excess of the power of the pancreas to neutralise it, even when the organ is only slightly affected, and that this may be the explanation of some of the cases in which we fail to find noteworthy anatomical changes in it after death. Of the seat of the formation of the toxin we have no indication, but it is not impossible that the benefits derived from restriction of carbohydrate diet arise less from mere limitation of the amount of sugar present in the blood than from the cutting off of the source of the poison which may be derived from carbohydrate metabolism. On the other hand, Dr. Lorand who was good enough to set his views before me in a personal interview, believes that an excess of animal food in the diet of a diabetic patient is harmful as tending to cause an excessive secretion of the colloid substance of the thyroid gland, this being, in his opinion, the poisonous substance at work. In view of this suggestion it would be interesting to observe carefully cases of obesity which are undergoing a course of treatment by thyroid extract in order to ascertain whether they exhibit glycosuria, but I have not had the opportunity of observing such a case since undertaking this inquiry.

In conclusion, then, I would venture to sum up the views which I have suggested as embodying a possible explanation of the phenomena of diabetes and the arguments by which they were reached.

1. Excess of sugar in the blood, which is the condition precedent of glycosuria, may be caused by over-production of sugar in the system or by diminished use or excretion. There is practically no evidence of either of these last processes. There is convincing evidence that at one stage, at all events, of diabetes there is increased production.

2. Over-production of sugar may depend upon some digestive irregularity, whereby more sugar than normal is poured into the blood from the food or upon manufacture of sugar from the tissues of the body. We have sufficient evidence that both these processes are at work in diabetes, in that at first the output in the urine can be controlled by limiting the diet, whereas later this is not possible. But whereas there are a considerable number of conditions in which sugar appears in the urine apparently as a result of absorption of additional sugar from the alimentary canal—these conditions being identical with diabetes only in the single fact of the appearance of sugar in the urine, while they run an entirely different clinical course—it is in diabetes mellitus alone that we have at any time evidence of formation of sugar from the tissue cells of the patient. This autolytic formation of sugar, if it may so be called, is the characteristic feature of diabetes in so far as the production of sugar is concerned.

3. It involves less of an assumption to suppose that this autolytic formation of sugar is present in diabetes all through the disease than to suppose that it ensues after a time as a result of the presence in the blood of excess of the very substance—sugar—into which the cells finally break down. The absence of proof of the existence of this process in the early stages of the disease, when the glycosuria is controlled by diet, may be due to the body possessing a certain power of utilising sugar in its nutritive processes, so that only the excess above a definite quantum appears in the urine."

4. There is sufficient evidence available to establish beyond the possibility of doubt the fact that there is some connexion between the pancreas and diabetes. Although it is not yet proved, yet it is becoming increasingly probable that the pancreas is diseased in all cases of diabetes mellitus. An increasing bulk of evidence is also accumulating to show that the function of the pancreas which is in abeyance in diabetes is normally performed by certain special groups of cells known as the islands of Langerhans, which are distinct from the ordinary secreting cells of the gland, but which are not improbably formed from the acini. The special lesion of these islands—hyaline degeneration—which has been associated with diabetes by some writers, is not present in all cases of the disease and may be found (in a less developed state) in other conditions.

5. The action of the pancreas may be exerted in the direction either of supplying a substance necessary for the assimilation of sugar by the cells of the body or in that of counteracting a poison which in some way causes accumulation of sugar in the blood. There is little or no evidence in favour of the former possibility; in favour of the latter there are the results of experimental intoxication with phloridzin, with suprarenal extract, and with other substances, and a few inconclusive results obtained by injection of secretions derived from diabetic patients.

6. We are not yet in a positiop to state with any certainty what tissue in the body gives rise to the sugar formed in diabetes. The theoretical possibility that sugar may be derived from fat is supported by certain observations which prove that a serious disturbance of the adipose tissue exists in diabetes. Further, if this hypothesis be admissible a certain unity will be introduced into our conception of diabetes, the phenomena of which will be explicable as manifestations of a single process occurring in a single tissue.

7. Lastly, glycosuria as opposed to diabetes may be due to mere excess of sugar poured into the blood from the alimentary canal in excess of what the system is capable of assimilating; or it may be due to causes acting analogously to the diabetic puncture of Claude Bernard and leading to a discharge of sugar by the liver from its stores of glycogen.

If the views here set forth are correct it follows that in its earliest stage the diabetic process may constitute rather a predisposing cause of glycosuria than the actual cause of the phenomenon, since the breaking down of the tissue-cells into sugar is at first not more than sufficient to saturate the sugar-assimilating powers of the system. At this stage a slight increase of saccharine food will produce glycosuria—an increase which in a normal person would not have this effect. Similarly a slight nervous shock sufficient to cause the liberation of only a comparatively small quantity of glycogen from the liver would also augment the sugar present in the blood above the point at which it appears in the urine. In such a way the onset of true diabetes might be ascribed to a shock when in reality it was previously existent but unnoticed. As far as definition is possible, then, diabetes might be defined as an increased internal dissociation of tissue (possibly fat) into sugar, caused by a toxic substance which is produced in the course of normal metabolism and which is normally neutralised by the pancreas.

I venture to think that such an explanation harmonises better than what I may call the alimentary hypothesis with the trend of opinion in the matter of treatment. A comparatively few years ago, on the supposition that the sugar present was the poison at work, it was customary to put patients upon a severely restricted diet and to gauge the progress of the case entirely by the fluctuations in the amount of sugar present in the urine. It is now recognised that such a strict diet as was formerly fashionable is harmful to the sufferer and may even lead to an early appearance of coma.

Indeed, the amount of sugar present in the urine is but a fallacious guide in estimating the condition of a patient. It is, perhaps, a criterion of some value when a patient first comes for treatment, as showing the stage which the case has reached and the amount of glycosuria which persists when the patient is on a restricted diet is some measure of the severity of the disease; but a patient taking some carbohydrate food and excreting more sugar may be in a better condition than one on a strict diet excreting a much smaller quantity. Nevertheless, we can hardly doubt that the presence of more than a certain percentage of sugar in the blood must by altering the density of the fluid, if not also in other ways, be detrimental to the organism; and we remain in presence of the old difficulty, how to feed the patient adequately and yet diminish the amount of sugar in the circulation. Nothing seems more certain with regard to the treatment of diabetes than that each patient must be a law to himself and that no general rule can be laid down for guidance. In some cases more and in others less carbohydrate food can be tolerated. The prognosis of any case, however, depends more upon the degree of acid intoxication existing than upon the percentage of sugar in the blood or urine.

I have to thank you, Mr. President and Gentlemen, for your patience in listening to these lectures and can only express my sincere regret that I have not been able to acquit myself more worthily of the responsible task which you did me the high honour of intrusting to me.

Bibliography.—Abderhalden and Roma: Zeitschrift für Physiologische Chemie, 1904, Band xli., p. 303. Baer: Archiv für Experimentelle Pathologie und Pharmakologie, 1904, p. 273. Beddiard, Pembrey, and Spriggs: THE LANCET, May 16th, 1903, p. 1366. Biernacki: Zeitschrift für Klinische Medicin, 1900, Band xli., Hefte 5 and 6. Cammidge: THE LANCET, March 19th, 1904, p. 782. Croftan: American Journal of the Medical Sciences, April, 1902; Philadelphia Medical Journal, Jan. 1st, 1902; American Medicine, Jan. 18th, 1902. Fischer: Virchow's Archiv, Band clxxii., 1903, p. 30. Giacco, quoted by Lennè. Haig: Uric Acid in the Causation of Disease, 1903. Hammerschlag and Kauffmann, quoted by Lennè. Herter: Journal of Experimental Medicine, 1901, p. 617; Virchow's Archiv, 1901, Band clxiv., p. 232. Hoffmeister: Archiv für Experimentelle Pathologie, 1899. Hoppe-Seyler: Münchener Medicinische Wochenschrift, 1900. Klemperer: Deutsche Medicinische Wochenschrift, 1900, p. 138; Berliner Klinische Wochenschrift, 1899, p. 869. Knopfelmacher: Wiener Klinische Wochenschrift, 1904, No. 9. Lancereaux: Bulletin de l'Académie de Medécine, June 25th, 1904. Lennè: Therapeutische Monatshefte, 1902, p. 182, &c. Leo: Deutsche Medicinische Wochenschrift, 1899, p. 705. Lépine: Revue de Médecine, 1900, p. 596; cf. Semaine Médicale, March 28th, 1900 (Société Médicale de Lyon). Lombroso: Comptes Rendus de la Société de Biologie, 1904, tome lvii., p. 71. Lorand: Die Entstehung der Zuckerkrankheit, Berlin, 1903. Lüthje: Deutsches Archiv für Klinische Medicin, 1904, Band lxxx., p. 98. Mandel and Lusk: Journal of the American Medical Association, July 3rd, 1904. Von Noorden and Mohr: Acid Auto-intoxication, translated by Croftan, Bristol and London, 1904 (with references to other authors quoted). Pasini: Lo Sperimentale, 1903, lvii., p. 57. Topfer and Freund: quoted by Lennè. Umber: Zeitschrift für Klinische Medicin, 1900, Band xxxix., p. 13. Wegele: Fortschritte der Medicin, 1902, p. 313. Wille: Deutsches Archiv für Klinische Medicin, 1899, Nos. 5 and 6. Reference may also be made to the following: Bouchard, Comptes Rendus de l'Académie des Sciences, October, 1898; Braunstein, Zeitschrift für Klinische Medicin, 1904, p. 359; Charrin and Guillemont, Semaine Médicale, 1900, p. 243; Daddi, Archives Italiennes de Biologie, 1899, pp. 337 and 439; Ellenberger and Hoffmeister, Archiv für Physiologie, 1891, p. 217; Fraser, Scottish Medical and Surgical Journal, September, 1903; Geimuyden, Skandinavische Archiv für Physiologie, Band xi., p. 97; Grube, Archiv für Experimentelle Pathologie und Pharmakologie, 1900, Nos. 5 and 6; Kraus, Berliner Klinische Wochenschrift, 1904, Nos. 4 and 9; Semaine Médicale, 1904, p. 8; Lüthje, Deutsches Archiv für Klinische Medicin, 1900, p. 405; Magnus-Levy, Archiv für Experimentelle Pathologie und Pharmakologie, Bände xiii. and xiv.; Mohr, Zeitschrift für Klinische Medicin, 1904, p. 337; Berliner Klinische Wochenschrift, Sept. 9th, 1903; Raimann, Wiener Klinische Wochenschrift, 1900, No. 8, p. 175; Rohmann, Pflüger's Archiv, 1887, Band xli., p. 411; Rosenqvist, Berliner Klinische Wochenschrift, 1899, p. 612; Rumpf, ibid., 1899, p. 185; Sweet, Journal of Medical Research, 1903, p. 256; and Waldvogel, Zeitschrift für Klinische Medicin, 1899, Nos. 4 and 6.

GALL-STONES AND CANCER.

BY G. R. SLADE, M.A., M.D. CANTAB., M.R.C.P. LOND.,
PATHOLOGICAL ASSISTANT AT THE LONDON HOSPITAL.

(From the Pathological Institute of the London Hospital.)

THE relation between gall-stones and carcinoma of the gall-bladder has given rise to much discussion in the past, and lately interest in the subject has been revived by the Bradshaw lecture on the Treatment of Cancer and by the subsequent correspondence. The point is of great importance in reference to surgical practice, and I trust that no apology is needed for the publication of the following observations which may help in the elucidation of the matter. This paper makes no pretence to be an exhaustive discussion of the subject but merely gives a brief account of a series of interesting cases that have occurred recently in the post-mortem room of the London Hospital and suggests certain conclusions that seem deducible therefrom. The figures are based upon the pathological records for the last 26 months, a period which coincides with the working of a new and more accurate system of registration. Increasing interest led me to examine the surgical registers also for the same period; but though I have ventured to touch upon the surgical as well as the pathological aspects of the question, my point of view has been essentially that of the morbid anatomist and any suggestions with regard to surgical practice are made with diffidence in the consciousness of trespass.

I must express my great indebtedness to the members of the surgical staff of the London Hospital for their kindness in permitting me to make mention of the cases under their charge.

PATHOLOGICAL ASPECTS.

1. *Frequency of gall-stones.*—In 2180 consecutive complete necropsies there were 33 cases in which gall-stones were either found in the gall-bladder at the post-mortem examination or had been removed by operation at a short interval before the patient's death. The low percentage proportion (1·5 per cent.) as compared with several similar series is probably explicable by the very large number of deaths occurring in the first three decades; for while Conradi[1] found gall-stones in 2·4 per cent. of 4000 necropsies on adults, Peters[2] found stones in only 0·62 per cent. of subjects under 30 years of age. In the present case it did not seem profitable to calculate the relative incidence at different ages, for the main interest lies in the absolute figures. In 17 of the 33 cases the gall-stones were "latent" and were discovered only at the necropsy. In the remaining 16 cases gall-stones and complications caused thereby were responsible for the patient's death.

2. *Changes in the gall-bladder associated with the presence of gall-stones.*—(*a*) In 16 of the "latent" cases the wall of the gall-bladder was not thickened and its mucous membrane appeared perfectly healthy. No microscopical examination was made. In the remaining case the wall of the gall-bladder was thickened, shrunken, and closely moulded over three large rough gall-stones, so that no cavity remained. Microscopical examination of the wall showed carcinoma. (*b*) Of the 16 cases in which gall-stones produced symptoms, in one case the gall-bladder had been removed for carcinoma shortly before the patient's death. In three cases the condition was pronounced to be carcinomatous on the post-mortem table; in two instances the opinion was confirmed by microscopical examination; in the remaining instance the macroscopic appearance of the growth was such as to satisfy competent pathologists of its malignant nature. In 12 cases the wall of the gall-bladder presented an appearance which at the time of the necropsy was described as "chronic inflammatory thickening." In seven of these cases, unfortunately, no microscopical examination was made but in every one of the remaining five cases subsequent histological investigation showed the presence of carcinoma.

3. *Association of carcinoma with gall-stones.*—From the facts just stated it appears that carcinoma of the gall-bladder was found: (1) in 30 per cent. (10 in 33) of all cases of gall-stones; (2) in 56 per cent. (9 in 16) of all cases where gall-stones had caused symptoms during life; and (3) in 58·8 per cent. (10 in 17) of all cases in which at the necropsy the wall of the gall-bladder showed "inflammatory thickening." These figures are sufficiently startling but there can be no doubt that they understate the true proportion. It should be noted particularly that in this calculation the seven cases which were not submitted to microscopical examination have all been reckoned as non-cancerous, although to the naked eye they presented an appearance exactly similar to that of the five cases which were examined and proved to be carcinomatous. Since I began in all such cases to examine the wall of the gall-bladder as a matter of routine I have in no instance failed to find indubitable carcinoma; hence I do not hesitate to suggest that had all the cases been examined the percentage showing cancerous change would have been very much nearer 100 than 58.

[1] Nothnagel's Encyclopædia, English edition, Diseases of Liver, Pancreas, and Suprarenal Glands, p. 548.
[2] Op. cit., p. 546.

MICROSCOPICAL APPEARANCE OF THE WALL OF THE GALL-BLADDER IN SIX OF THE CASES OF CARCINOMA.
(From Micro-Photographs by Mr. E Wilson of the Photographic Department of the London Hospital.)

FIG. 1.—Columnar-celled carcinoma. A, Lumen of gall-bladder. B, Muscle bundle. C, Dense connective tissue. D, Irregular alveolus lined by columnar cells.

FIG. 2.—Scirrhous carcinoma.

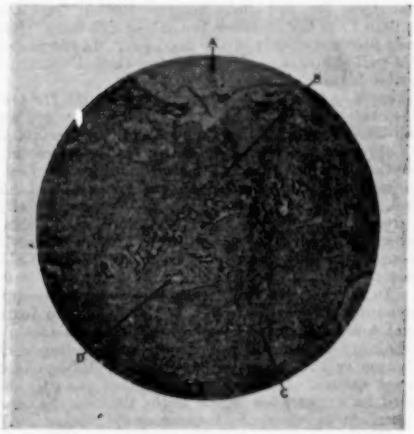


FIG. 3.—Cubical-celled carcinoma. A, Lumen of gall-bladder. B, Remains of atrophic muscular coat. C, Fibrous tissue. D, Alveolus lined by low cubical cells and devoid of basement membrane.

FIG. 4.—Columnar-celled carcinoma. C, Thick strand of dense fibrous tissue. D, Alveolus lined by columnar cells.

FIG. 5.—Columnar-celled carcinoma. A, Lumen of gall-bladder. B, Muscle bundles. C, Fibrous stroma. D, Alveolus lined by columnar cells.

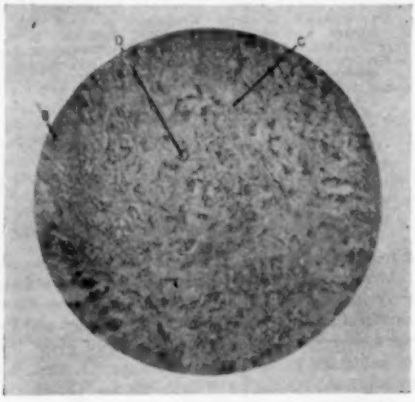


FIG. 6.—Cubical-celled carcinoma. B, Muscle bundle. C, Very dense fibrous tissue. D, Alveolus lined by cubical epithelium.

4. *Causal relation between gall-stones and carcinoma.*—This question is excellently discussed in Rolleston's recently published monograph on "Diseases of the Liver."[3] It is enough here to say that most authorities now agree in regarding gall-stones as cause and carcinoma as effect. The present series of cases lends strong support to this view of the relation if regard be paid to the following considerations: 1. In two cases symptoms attributable to the presence of gall-stones were of long duration. 2. In five other cases considerable fibrous thickening of the wall of the gall-bladder, in itself evidence of long-continued irritation, was associated with a very early stage of carcinoma. 3. In reference to the other cases it is to be noted that, while prolonged symptoms are valuable evidence, brief duration or absence of symptoms is of little importance, for it is notorious that gall-stones may be absolutely latent throughout.

It occasionally happens that no gall-stones are found in cases of carcinoma of the gall-bladder and this occurred in two instances during this period at the London Hospital. In one case, that of a woman, aged 61 years, it was impossible to determine accurately whether the growth had originated in the gall-bladder or the liver; the other case was that of a man, aged 70 years, who died very soon after admission in consequence of a street accident, so that there was no opportunity of inquiring for a possible history of previous biliary colic. In all such cases it must be remembered that absence of gall-stones at the necropsy is not positive evidence that the gall-bladder has never contained a stone and while it is conceivable that carcinoma of the gall-bladder may occasionally arise apart from irritation caused by gall-stones there seems to be nothing in the two cases quoted to give unequivocal support to such a view.

In reference to the development of carcinoma it is an interesting point that of the 33 cases of gall-stones, in 16 the gall-bladders contained smooth stones and their walls were thin and healthy. In 17 (ten at least of which were carcinomatous) there was evidence of chronic inflammatory change in the wall of the gall-bladder and in the majority of these cases the calculi were rough; and these facts seem to suggest that the mere presence of gall-stones is insufficient to set up carcinomatous change and that some additional factor is necessary, such as: (1) a rough calculus, causing continued irritation; (2) infective cholecystitis, with or without the formation of pus; or (3) a combination of these conditions.

SURGICAL ASPECTS.

During the period under review abdominal section was done on 61 occasions because of the presence of stones in the gall-bladder and complications arising therefrom and in one additional case the patient's condition was such as to render operative interference hopeless. 17 of these patients died; in four cases a post-mortem examination was not permitted; in four cases a necropsy was made but the wall of the gall-bladder was not examined by the microscope; in nine cases there was carcinoma of the gall-bladder. 45 patients recovered; in two of these cases carcinoma was found in association with gall-stones and the gall-bladder was removed; of the remaining 43 cases the majority showed hydrops or empyema of the gall-bladder and in no instance, so far as could be determined on the operating table, was there more than a simple inflammatory thickening of the wall of the gall-bladder.

In view of the post-mortem findings already related it seems probable that some of these patients already had carcinoma of the gall-bladder in a stage too early for recognition by the naked eye; and I hope shortly to trace the after-history of these cases, though such a task is difficult and often disappointing in a hospital which serves a widespread and shifting population. It follows that of 62 patients in whom operation was called for owing to the presence of stones in the gall-bladder 11 (nearly 18 per cent.) were shown either at the time of operation or by post-mortem examination to have carcinoma of the gall-bladder. And here I must emphasise the point already mentioned that these figures are minimal and in all probability are far below the true percentage ratio, for in this estimate every case in which a full examination was impracticable or was omitted has been accounted innocent, whereas every case that was submitted to a complete investigation proved to be carcinomatous.

The word "pre-cancerous" is in fashion at present and undoubtedly it has done good service in drawing general attention to the intimate connexion which exists between prolonged irritation and the development of carcinoma, not only of the gall-bladder but also of the breast, the tongue, and certain other organs. But an indiscriminating use of the word may actually be a bar to progress and lead one to prejudge the issue in cases which are admittedly doubtful, and it would be at once more useful and more accurate to apply the term not to this or that diseased tissue which may or may not be cancerous, but to influences which are recognised as frequent antecedents of the development of cancer. In the case of the tongue and the breast, where it is comparatively easy to remove a piece of tissue for histological examination, it may be argued that the word "pre-cancerous" is a convenient label for cases on the borderland between inflammatory hyperplasia and malignant growth, and this conventional use, though not unobjectionable, is legitimate if it be borne in mind that the verdict merely implies "not proven." But in the case of the gall-bladder where such preliminary investigation is impracticable the only recognisable "pre-cancerous" condition—if that word is to have any helpful significance—is the presence of gall stones in the bladder, and in view of the very frequent association of gall-stones with carcinoma and of the impossibility of recognising the early stages of carcinoma at the time of operation, I suggest that it would be sound practice, wherever it is surgically feasible and no obstruction of the common duct exists, to remove the gall-bladder in all cases where "chronic inflammatory thickening" is found in association with gall-stones.[4] There is here no possible objection on the score of mutilation such as might deter one from making a similar proposal with reference to the tongue and possibly also the female breast, and the gall-bladder, like the appendix cæci, though doubtless serving some useful purpose in the human organism, must still be considered rather a luxury than a necessity of existence. I am conscious of the danger of drawing inferences from a somewhat limited experience and it may be that extended investigation will show that mine has been unusual, but should these conclusions be substantiated I would urge that cholecystectomy should be done at the earliest possible moment, not only on the general

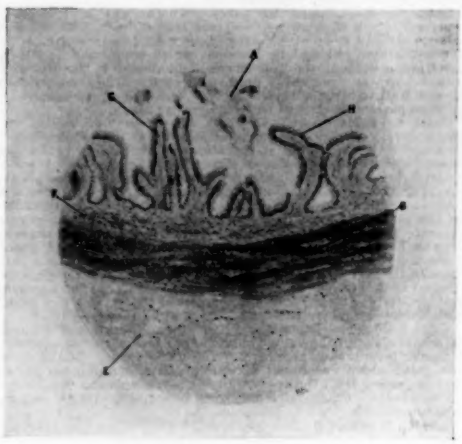


FIG. 7.—A semi-diagrammatic representation of the normal gall-bladder from a woman aged 53 years. It is introduced for comparison with the micro-photographs of the cases of early cancerous change. A, Lumen of the gall-bladder, with desquamated epithelial cells and amorphous débris. B, Muscular coat. F, Submuscular fibrous tissue. F, Sub-epithelial connective tissue which is continued upwards into numerous longitudinal ridges, one of which is shown in cross section at G. H, Columnar epithelium of the gall-bladder, which invests the projecting rugæ, but is everywhere separated by connective tissue from the muscular coat and does not descend in the form of crypts or tubules below the general level of the surface. (I am indebted for this diagram to the kindness of my friend Dr. H. Balean.)

[3] Page 627 et seq

[4] A minor but not unimportant consideration is that removal would do away with the need of drainage and prevent the possibility of a biliary fistula remaining.

principle that prevention is better—and easier—than cure but especially because of the notoriously high mortality that follows operative measures even in early and still eradicable cancer of this organ—a point that is emphasised by the present series wherein of 11 patients with carcinoma who were submitted to operation no less than nine succumbed.

Conclusions.—1. The association between carcinoma of the gall-bladder and gall-stones is very close. 2. Gall-stones may be looked upon as the determining cause of cancer of the gall-bladder. 3. Thickening of the wall of the gall-bladder is presumptive evidence of carcinomatous change. 4. Cholecystectomy should be performed whenever possible if any thickening of the wall of the gall-bladder be found at the time of operation.

Abstracts of eight cases of carcinoma of the gall-bladder which were examined by the writer, micro-photographs being appended in six of the cases.

CASE 1 (Fig. 1).—Female, aged 54 years. She had had several attacks of colic, each followed by transient jaundice, during the last nine months of life. At the operation three large stones were removed from the common duct. The gall-bladder was opened and drained. Death ensued in a few hours. At the post-mortem examination there was dilatation of the common and the cystic ducts. The cavity of the gall-bladder was diminished and its wall was thick and fibrous.

CASE 2 (Fig. 2).—Female, aged 64 years. A history of vomiting, increasing constipation, and pain in the right hypochondriac region for six weeks was obtained. No operation was performed. At the post-mortem examination 45 stones were found in the gall-bladder and one in the cystic duct. Near the neck of the gall-bladder was a nodule of firm growth which had begun to invade the liver.

CASE 3 (Fig. 3).—Male, aged 43 years. There was a history of acute onset of colic, with jaundice and enlargement of the gall-bladder. Cholecystotomy was performed and numerous stones were removed. Intractable vomiting supervened and death followed speedily. At the post-mortem examination the gall-bladder was dilated and its wall was fibrosed.

CASE 4 (Fig. 4).—Female, aged 61 years. She had had attacks of colic at intervals for five years. At the operation the gall-bladder was opened and many stones were removed. Death ensued five days afterwards. At the post-mortem examination a mass of growth was found projecting into the cavity of the gall-bladder at the fundus, and the greater part of the wall was infiltrated.

CASE 5.—Male, aged 60 years. There was a history of a transient attack of jaundice two years before death, with subsequent passage of a gall-stone by the anus. Severe colic and vomiting occurred 20 months later, followed by jaundice, which persisted. At the operation a stone was removed from the common duct. At the necropsy the gall-bladder was represented by a small cavity with greatly thickened fibrous wall, closely adherent to the surrounding structures. The microscopic section showed early cancerous change.

CASE 6.—Female, aged 43 years. A history of illness of one year's duration, with symptoms suggesting pyloric obstruction, was obtained. At the operation the stomach was found to be greatly dilated and there were dense cicatricial adhesions just beyond the pyloric ring. Posterior gastro-jejunostomy was performed. At the necropsy the gall-bladder contained several large gall-stones and its wall was indurated and enormously thickened. The mass was adherent to the first part of the duodenum and caused great narrowing of its lumen. The microscopic section showed early cancerous change.

CASE 7 (Fig. 5).—Female, aged 51 years. A history of attacks of colic and vomiting for six months was given. There was a palpable mass in the region of the gall-bladder. Exploratory abdominal section showed that operative treatment was impossible. At the necropsy the gall-bladder was replaced by a large mass of indubitable new growth in which were several gall-stones.

CASE 8 (Fig. 6).—Female, aged 46 years. There was a history of attacks of abdominal pain and vomiting for several months, followed by irregular fever and enlargement of the gall-bladder. At the operation the gall-bladder was found to contain pus and numerous gall-stones and projecting from the upper wall at the fundus was a fungating mass of carcinoma. Cholecystectomy was performed. Death was due to acute bronchitis.

London Hospital, E.

THREE CASES ILLUSTRATING THE CONDITION OF THE SMALL INTESTINE SOME YEARS AFTER EXTENSIVE ENTERECTOMIES.[1]

BY ARTHUR E. J. BARKER, F.R.C.S. ENG.,
SURGEON TO UNIVERSITY COLLEGE HOSPITAL.

THERE must be few surgeons now who do not recognise the peculiarly disastrous effects of paralysis of the bowel in advanced intestinal obstruction. These make themselves evident to the operator in many ways before, during, and after the relief of the obstruction, and are unfortunately so often seen that they require no comment here. But few of us are likely to have many opportunities of seeing the effects of this paresis on the *living* gut *years* after the relief of severe obstruction. Three such opportunities have fallen to my lot quite recently and it seems desirable that they should be put on record, emphasising, as they do, some points of fundamental importance in the treatment of acute intestinal obstruction.

The two first patients concerned were both women. They were admitted some years ago for gangrenous femoral herniæ and in both I was obliged to resect long tracts of small intestine in order to obtain relatively sound tissue for the anastomosis. Both made a satisfactory recovery from these operations but were readmitted in October, 1904, for operations in the course of which it was possible to examine the original seat of the enterectomies. In both it was most interesting and instructive to observe that, though the communication between the two portions of the bowel was perfect and as wide as possible, the afferent or proximal portion still showed unmistakeable signs that it had not yet recovered its former tone as contrasted with the efferent or distal portion which was normal. The significance of this observation appears to me very great both from a medical and a surgical point of view and so far as I know has not yet attracted attention at home or abroad.

A description of the first operation in each case has already been published and it is only necessary here to state that, in the first, 18 inches of small gut were removed in June, 1899, on account of a gangrenous femoral hernia. This was done through the femoral ring, Poupart's ligament being divided to permit of the reduction of the anastomosed bowel and ligatured mesentery into the abdomen. The junction was "end-to-end." In the second case, also of gangrenous femoral hernia but in a much graver condition, the gangrenous loop was on Feb. 23rd, 1903, cut away below the femoral ring and then the ligatured ends were passed into the abdomen and brought out through a median incision where six and a half feet of damaged small intestine were taken away from the proximal portion and a *lateral* anastomosis was made.

Case 1 was readmitted on Oct. 24th, 1904, for the radical cure of double hernia—i.e., five and a half years after the enterectomy. A large femoral hernia was found to exist on the left side in the seat of the first operation and a moderate-sized inguinal hernia on the right. The patient was very stout. The left hernia contained much intestine the movements of which could be seen through the thin coverings and was obviously due to the weakening of Poupart's ligament by its division in the earlier operation. On Oct. 27th the usual operation was done for the radical cure of this hernia.

When the sac was opened I took the opportunity of examining the contained bowel before it was reduced in the hope of finding the anastomosis. Fortunately, it was there and its condition could be demonstrated to a large number of those present in the operating theatre. When drawn forward and laid on a layer of white gauze we could see that the two portions lay accurately in line and that the junction was as smooth as the rest of the bowel and without a trace of adhesion to any other structure. It was marked by faint white streaks indicating the seat of the sutures all of which had completely disappeared. There was not the slightest sign of contraction or narrowing. But what struck us all most forcibly was that all the bowel distal to the anastomosis was in a state of very active vermicular movement and was contracted to a small size while that above the junction was smooth, sluggish, somewhat thinner, and of considerably larger lumen than that below. I drew the coil forward and stretched it gently but this made no difference in the relative sizes of the two portions. It was, in short, evident that the original paralysis of the bowel above the obstruction had left behind it a certain want of tone in the muscular wall of the proximal portion or blunted nervous irritability. The only other trace of the original operation was a tiny adhesion of an adjacent coil to the mesentery close by which I did not think it worth while to divide. After clearing up these points of interest the bowel was reduced and the radical cure was completed. The other inguinal hernia was operated on a week later on which occasion the first was found blamelessly healed per primam. The patient left hospital well on Nov. 26th.

Case 2 was readmitted on Oct. 14th, 1904, suffering from intestinal obstruction of some days' standing. Suspecting a band of adhesion from the former operation in February, 1903, I opened the abdomen above the median scar and found several very firm adhesions between the stump of the mesentery and the lower end of the scar. Round these

[1] A paper read at the Clinical Society of London on March 24th, 1905.

adhesions some coils were kinked. These were released and I drew out the intestine and obtained a good view of the old lateral anastomosis of 21 months before. Here, too, it was extremely interesting to note that though the opening between the two portions was widely patent the proximal, as far up as it was exposed, was of considerably larger size than the distal. Both were contractile but the lower more so than the upper. Several adhesions were left undisturbed and the abdomen was closed. Convalescence was uneventful and the patient left hospital quite well on Nov. 7th.

These two observations made *intra vitam* on patients suffering from no general disease and quite healthy at the time except for the local condition, fill up to a certain extent a gap in our knowledge as to the changes which take place in an intestine above an acute obstruction, and as to the period during which these effects may remain after the latter has been relieved. It might at first sight appear almost incredible that evidence of want of tone in the bowel should exist several years after the cause had been removed. But we see the same thing elsewhere frequently. For instance, who does not know the cold congested appearance of a limb which perhaps months or even years before has been the seat of some inflammatory septic condition such as erysipelas. In this case the tissues have been saturated with toxins just as the walls of the intestines have been and the result has been atony of the coats of the vessels of the part and deficient local nerve energy or even paræsthesia.

In Case 1 it was most striking to see the distal portion of the gut wriggling and contracting energetically under the stimulus of exposure to the air while the proximal part up to the line of anastomosis was sluggish and almost quite indifferent to the same stimulus. And when we come to reflect upon what actually takes place in the walls of the intestine above an acute strangulation we must admit that there is little cause for wonder if the effects should last for a long time. Should the obstruction remain unrelieved for long we all know the dilatation of the gut above which follows, accompanied at first by increased peristalsis but terminating before long in paresis or complete paralysis. This paralysis is probably not entirely due to exhaustion of the muscular coats from overstrain but is the result of the saturation of all the tunics of the bowel with toxins developed in the fermenting contents. That this is so seems to me proven by the fact which every surgeon must have observed over and over again—i.e., that when a bowel is examined above a bad obstruction it will be found in many cases œdematous for several feet on the proximal side of the strangulation. This need not be due to the presence of ulceration at the point. This condition, which is so common in the bowel just above an obstruction and for a foot or two upwards, might explain the œdema locally. But far above this the œdema extends where no breach of surface can be detected, at all events with the naked eye.

In Case 2 I found œdema more than six feet above the strangulation when I was making the anastomosis at that point. We see, also, further evidence in a submucous ecchymosis associated with the œdema. In another case, where I removed five and a half feet of small intestine for acute strangulation, the œdema was so marked in the proximal portion while the "end-to-end" anastomosis was being made that I was in serious doubt as to whether the vitality of the bowel was sufficient for repair. Happily it proved to be so and the patient made an excellent and uninterrupted recovery. That such toxins are intensely irritating on other surfaces is well seen on the skin soon after an artificial anus has been made to relieve a bowel damaged by acute obstruction. In a case recently operated on for this condition the ulceration of nearly the whole of the abdominal surface was the most formidable complication in the subsequent treatment of the case. Again, the œdema is not seen in the earlier stages of acute obstruction before the ferment toxins are developed in the retained contents but it is found in neglected cases in increased intensity and extent in proportion to the duration of the obstruction and possibly also in relation to the quality of the aliment previously given to the patient. But though I have been for years alive to these changes in the bowel wall and have planned my resections and "short-circuit" operations with due regard to them I confess I was hardly prepared to find evidence of more or less paresis of the proximal part some years after the obstruction had been relieved.

This has all to be taken into account also in cases where we elect to perform a short circuit round an obstruction, as Case 3 shows, which has come under notice since this paper was sent in to the society. This was a case of a man, aged 29 years, who was admitted into hospital two years ago for acute obstruction grafted on a chronic condition which we diagnosed to be probably cancerous in the hepatic flexure of the colon. He had stercoraceous vomiting and much distension, &c. I opened the abdomen below the navel and found greatly distended small bowel. This was slit open over a basin and gave exit to large quantities of gas and fluid fæces. It was then possible to explore further and I found the cæcum and ascending colon distended and the descending colon and sigmoid flexure empty and shrunken. The obstruction, therefore, was obviously between the two regions. I then united the lower part of the ileum to the sigmoid flexure side to side and closed the evacuation opening. Recovery followed but the man would not stop in hospital for the resection of the growth but promised to return as soon as he had arranged his business affairs. However, he did not appear until about three weeks ago. When I opened the abdomen last Thursday week the growth was found too extensive and fixed under the liver to justify removal and I closed the wound. But before doing so the "side-to-side" junction was examined and the place where the evacuation opening had been made and closed. Both were in perfect condition, no traces of the black thread sutures being seen and not the smallest suspicion of adhesions to surrounding parts where the bowel had been stitched and manipulated; all was smooth over the white-lined cicatrices. Nevertheless, as in the other cases, the proximal and in this case the distal portion between the anastomosis and the cæcum, about eight or ten inches, were still in a state of atony and contrasted markedly with the upper part of the ileum and jejunum, which could be seen contracting in active vermicular action. The man's health had been excellent since the first operation and his bowels quite regular and motions normal. Incidentally I may express the regret that this poor fellow did not redeem his promise of returning for the removal of the growth before it grew too extensive and fixed for excision. For he is still in good condition, though now losing colour and strength from generalisation and complains of nothing else.

When we find such changes in the intestines as those just described even years after the cases have been relieved we are more than ever driven to the conclusion that in acute strangulation we must operate before they can have had time to develop. And if this be impossible we must not hesitate where resection is necessary to remove large tracts of bowel in order to get well above the paralysed portion, saturated as it is with toxins and so devitalised. In another respect the first two cases offer us a valuable hint by contrast. In Case 1 the resection was performed through the femoral ring and the difficulty of doing so was well exemplified. It was not so much the "end-to-end" suture which gave trouble, though this is much easier through an abdominal wound. But when the mesentery corresponding to the 18 inches of resected bowel had been tied off and sutured side to side a mass was formed of such a size that it was impossible without the exertion of more force than the sutured bowel would stand to reduce it through the femoral ring. I was therefore obliged to enlarge the opening by dividing Poupart's ligament in order to get it back. The result of this was a large femoral hernia in course of time. Taught by this I determined in the next case to cut away the gangrenous loop after tying the bowel above and below and then to pass the stumps carefully covered with gauze into the abdomen and then out again through a median incision in the abdominal wall for the performance of the extensive enterectomy (six and a half feet), which was necessary. Here, of course, there was no trouble with the mesentery in slipping it under Poupart's ligament and the femoral opening could be closed by a few stitches. The result is that up to the present, now more than two years, there is no trace of hernia which was so marked in Case 1. This procedure of suturing the stumps and returning the bowel after removal of the gangrenous loop and performance of the rest of the enterectomy through a median incision appears to me the typical method of dealing with the condition.

This paper is a natural sequel to some papers on Enterectomy for Gangrenous Hernia published in THE LANCET in 1903.[2]

Harley-street, W.

[2] THE LANCET, May 30th (p. 1495) and June 6th (p. 1576), 1903.

A FURTHER NOTE ON THE RELATION BETWEEN VARIOUS ATMOSPHERIC CONDITIONS AND THE OCCURRENCE OF CEREBRAL HÆMORRHAGE.

BY JAMES W. RUSSELL, M.A., M.D. CANTAB., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN TO THE BIRMINGHAM GENERAL HOSPITAL.

IN THE LANCET of Jan. 28th, p. 222, I tried to discover whether any positive evidence could be obtained in favour of the suggested influence of variations in atmospheric pressure and temperature in determining the onset of cerebral hæmorrhage, with the result that in a series of 128 consecutive cases admitted into the Birmingham General Hospital five out of every nine were found to occur on days on which the barometric pressure was above the average. Temperature was not found to exercise any influence but a large preponderance of cases occurred on days on which a wind pressure below the average was recorded. In a letter to THE LANCET of Feb. 4th, p. 322, Dr. W. H. Symons pointed out that the inequalities shown by my figures would be satisfactorily explained if there existed an actual preponderance of days of atmospheric pressure above the average in the years involved in the inquiry. This very obvious explanation had not occurred to me and on putting it to the test I find that it completely accounts for the excess of cases observed not only on days of high barometric pressure but also on days of low wind pressure. The point is not one of great importance, as the evidence obtained was at most inconclusive; but as my figures are, so far as I know, the only ones existing on the subject I feel bound to correct the inferences tentatively drawn from them. I have the less regret in doing so as my paper was not written with any desire to make out a case in favour of the suggested connexion, and that the present results are far more in accord with physiological probabilities.

In the 12 years under examination there were 4377 days on which the atmospheric pressure was above the average as compared with 2043 days when a pressure below the average was recorded. This preponderance of days of higher pressure would account for the occurrence of 68 out of my 128 cases on those days, leaving 60 for days of pressure below the average level. The actual numbers obtained were 71 and 57 respectively, and it therefore seems clear that the excess of cases occurring on days of higher pressure is entirely accounted for by the larger number of those days existing in the years under examination, and that my cases afford no evidence in favour of the suggested influence of high barometric pressure in causing cerebral hæmorrhage.

The figures obtained with regard to variations in pressure do not correspond quite so closely. On taking the pressure of each day in relation to that of the days preceding and following it, and using the same symbols as in my former paper, I get the following results:—

	<>	<	>	><
Actual number of days in the 12 years	968	1148	1176	971
Corresponding proportion for 128 cases	30	34	35	29
Actual distribution of cases as published in former paper	29	42	28	29

It appears, therefore, that a small excess of cases occurred in the course of a steadily rising barometer beyond that accounted for by the preponderance of days with that arrangement. It is hardly, however, large enough to carry much weight as evidence of a causative effect.

In the matter of temperature the days are very evenly distributed as regards the average. Thus in the months concerned in one-third of the total number of the cases there were 334 days on which the temperature was above the average maximum for the month and 335 on which it was below the average. I did not, therefore, consider it worth while to continue the calculation, and the results of my former figures, which showed no causative effect of temperature, may be taken as correct. The apparent effects of a low wind pressure are similarly explained by the large excess of days with a pressure below the average. In the 12 years concerned there were 2973 days of low, as compared with 1343 days of high, pressure. This gives a distribution in 128 cases of 88 and 40 respectively. The actual figures obtained were 92 and 36, a sufficiently close approximation.

It thus seems to be established that actual height of barometric pressure, temperature, or wind pressure exercises no influence in determining the onset of attacks of cerebral hæmorrhage.

Birmingham.

PLAGUE IN CATS.

BY WILLIAM HUNTER, M.B., C.M. ABERD.,
GOVERNMENT BACTERIOLOGIST, HONG-KONG.

THE writings of past ages tell us that during epidemics of plague domestic pets were not spared the disease. It is only within recent years, however, that the occurrence of plague in animals such as cats, which are intimately associated with man, has attracted attention. In fact, until the question of rat plague was raised the presence of plague in animals was practically lost sight of and regarded of no significance in reference to the spread of the disease. With the knowledge of the presence of widespread rat plague and the fact that cats frequently devour these animals, the possible rôle played by cats in the dissemination of plague amongst human beings would appear to be of importance. Few accounts of natural plague infection in cats are to hand. The various plague commissions make mere mention of cat plague. They regard these animals as only slightly susceptible to the disease. In consequence they conclude that so far as the spread of plague is concerned cats are of no great importance.

Such an answer to the question of plague in cats is only partly true. Cats, when compared with many other animals, do appear relatively insusceptible. Their importance in the dissemination of plague, however, is underrated when the subject is viewed in the light of recent experience. The disease in cats is rare but the possibility of the occurrence of plague in domestic pets in plague-infected districts must not be forgotten. Experimentally produced plague in cats would appear to give inconstant results. The disease can be induced but much depends upon the method of incorporation of the virus. The German Plague Commission reported upon the effects of cutaneous and subcutaneous inoculation of these animals. Beyond a slight febrile reaction nothing definite was obtained. All the cats recovered. The commission concluded that cats were relatively insusceptible to plague. The results of Albrecht and Ghon were more definite. They fed cats on plague-infected material. Several of the animals died as the result of plague infection. The type of disease reproduced was septicæmic. In one or two instances a bubo was found in the submaxillary region. Kolle also fed cats with cultures of plague. Several of the animals died from plague. Wilm, in his report on plague, fed two cats with pieces of a plague bubo. The animals were sick for several days. Great emaciation of the cats was noted. Ultimately both animals recovered.

From these investigations on experimental plague infection in cats it is evident that infection per os gives the most constant results. By this method cats would appear to contract the disease. The question of a lethal termination probably depends upon the virulence of the infecting material used for purposes of inducing the infection. As regards spontaneous plague infection in cats, extremely little would appear to be known. The Indian Plague Commission simply notes the fact and dismisses it in a sentence. In Sydney, Ashburton Thompson has reported the presence of plague infection in cats. He draws attention to the dangers attached to such a focus of infection.

An excellent opportunity of studying spontaneous plague infection in cats occurred recently in Hong-Kong. The history of the epizootic is the following. During the systematic collection of rats, dead and alive, in Kowloon for bacteriological examination many of those caught in the godowns were found to be plague infected. A week or two after rat plague had been found the servants of the Godown Company reported the death of several of their cats which were kept on the rat-infected premises. The bodies of these

cats were sent to me for bacteriological examination. This was carried out as completely as possible, the morphological and cultural tests being typical of the bacillus pestis. The stalactite test was also positive. The cat mortality increased. I requested that all cats, sick or dead, should be forwarded to me. The sick cats were kept under observation in isolation. Experiments were made in regard to the modes of infection in cats and the symptoms of the disease were noted as carefully as possible. My investigations showed that cutaneous and subcutaneous inoculation do not give definite results. Feeding cats with plague buboes and pieces of human spleen crowded with plague bacilli give more or less constant results. The following experiments were undertaken.

Cat No. 1.—The animal was healthy and was kept under observation for at least 14 days. It was inoculated subcutaneously with one cubic centimetre of emulsion of plague bacilli on agar. After 24 hours the previously normal temperature rose to 102° F. The animal refused food. A doughy swelling occupied the site of inoculation. After 72 hours, the temperature being 103°, the animal had vomiting and diarrhœa. The swelling was much the same in size but now felt boggy on palpation. No plague bacilli were found in the blood. From this time onwards, apart from a considerable loss in weight, the cat progressed favourably. The swelling developed into an abscess containing abundant staphylococci but no plague bacilli could be found.

Cat No. 2.—The conditions were the same as in No. 1. The animal was fed with the greater part of a large femoral bubo (human). On the next day the cat was decidedly ill. It refused food and suffered from watery diarrhœa. The temperature was 103° F. From this time onwards the condition became aggravated; the temperature was irregular and maintained about 102°–103°. The abdomen was distended and tender to touch. The diarrhœa continued to the last. No tenderness was noted in the axillæ or groins. Emaciation was also a marked feature. Death took place in seven days. The fæces were rubbed into the shaved abdomen of a guinea-pig. This animal died from plague in four days. A post-mortem examination was made. There was great congestion of all organs and tissues. Hæmorrhages of varying size were also found. The lymphatic glands were enlarged, red, and œdematous and on section showed marked cortical injection. There was no bubo. The intestinal mucous membrane showed great congestion, swelling, and slight erosion. Petechiæ were scattered throughout its entire length. The solitary follicles were enlarged and in some parts of the gut the condition resembled severe follicular enteritis. Plague bacilli were found throughout the body. The organism was isolated and subjected to the well-known tests.

Other experiments on healthy cats were not made owing to the number of cats from the godowns which I had at my disposal. From an observation of these animals I found that plague may be either acute or chronic. The following is a *résumé* of my results:—

Acute cat plague.—Symptoms: These are usually present within 24 hours. Food is refused. The hair of the animal becomes ruffled. Diarrhœa and vomiting are among the early symptoms. Weight is lost rapidly. The abdomen is distended and often tender to touch. Towards the end of the disease great weakness and even paralysis of the extremities are present. Death usually occurs in from two to six days.

Post-mortem appearances.—Bubonic swellings may be found, especially about the neck and the mesentery. The lymphatic glands in general are enlarged and show marked cortical injection. The general condition throughout the organs and tissues of the animal is one of extreme congestion and hæmorrhagic extravasation. The condition of the abdomen is interesting. The peritoneum is smooth and shiny. Very little fluid is present in the peritoneal cavity. Petechiæ may be found over the surface of the peritoneum. The stomach is congested, particularly on its mucous surface. The latter also shows the presence of innumerable hæmorrhages of varying size. No actual ante-mortem ulceration was found. The small intestine is in general reddened and little of engrossing interest was found until the ileum was reached. This part of the gut was the seat of many small hæmorrhages. The mucous surface was red and thickened. The latter was chiefly due to œdema. The solitary follicles were visible, being pin-head in size and greyish-yellow in colour. Small areas of necrosis were present; these appeared chiefly about the regions of hæmorrhagic extravasation. The mesenteric glands were enlarged. In one or two cases the appearance of distinct bubonic formation was found, the glands being matted together in hæmorrhagic extravasation, enlarged, with areas of necrosis, and containing myriads of plague bacilli. The type of disease was in all instances *septicæmic* but special tendency was shown on the part of the plague bacilli to collect in the lymphatic apparatus.

Chronic cat plague.—The most prominent symptom is great emaciation. Buboes may be found in various situations of the body, especially about the neck. These are chronic in growth and are accompanied by a large amount of surrounding infiltration. These swellings break down ultimately, discharging thick creamy pus. The animals may live for two months. The condition is well described by the term "pest marasmus."

The following conclusions appear to be justified from the various observations and experiments on plague-infected cats. 1. Cats suffer from plague. 2. The disease may be acute or chronic. 3. The type of the disease is septicæmic. 4. These animals may occasionally play a part in the dissemination of plague. 5. In plague-infected districts possible plague infection in cats is of great importance from a domestic point of view. 6. In plague-infected areas cats probably become infected through plague rats and mice which they devour as food.

Hong-Kong.

SUPPURATIVE PERIOSTITIS FOLLOWING TYPHOID FEVER.

BY WILLIAM H. BATTLE, F.R.C.S. ENG.,
SURGEON TO ST. THOMAS'S HOSPITAL;
AND
LEONARD S. DUDGEON, M.R.C.P. LOND.,
SUPERINTENDENT OF THE CLINICAL LABORATORY AND DEMONSTRATOR OF CLINICAL PATHOLOGY, ST. THOMAS'S HOSPITAL; ERASMUS WILSON LECTURER, ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THERE are now many instances of the occurrence of bone lesions after typhoid fever in the discharge from which the bacillus typhosus has been demonstrated. There are some unusual features in the following case which make it of exceptional interest. Most of those recorded have been affections of the tibiæ or ribs and the extent of bone involved has not been so extensive as here. It is unusual, also, to have an inflammatory attack of the bone which has arisen and subsided at a time when the bacilli would presumably be more active than at a later date. It is also noteworthy that although the periosteum was completely separated from the bone for some distance up the shaft and in the whole circumference the recovery of the limb without necrosis of bone has apparently been assured.

The patient was admitted into the Leopold ward of St. Thomas's Hospital on Oct. 28th, 1904, and was discharged on Dec. 21st, 1905. (The following is taken from the notes by Mr. Finch.) The patient was in the George ward, under the care of Dr. Hector W. G. Mackenzie, from July 7th to Sept. 10th, 1902, for typhoid fever. The illness had commenced on June 30th with headache, vomiting, and pain in the back and abdomen. On July 11th symptoms of perforation developed at 1.30 P.M. Abdominal section was performed at 7.15 P.M. and a perforation of the ileum was sutured by Mr. Battle. The patient was readmitted on Sept. 18th for pain in the right femur and knee; this was treated with iodide of potassium and local applications and he was able to leave the hospital in about three weeks. Since that time he had remained well, but was readmitted some months after for pain in the abdomen which followed a slip whilst carrying a sack of coals. The present illness began four weeks before admission with pain in the lower half of the right femur. This pain was of a gnawing character, sometimes shooting down the leg; it was worse at night and kept the patient awake.

On admission the lower third of the right femur was uniformly enlarged and was extremely tender on pressure. The skin in front of the thigh in this situation was red from the application of mustard poultices before he came

to the hospital. His temperature was 102·2° F. There was no evidence of syphilis in any part, the glands in both groins were easily felt, and there were a few scars on the legs, but these presented nothing characteristic. Skiagrams showed thickening of the lower half of the femur. On Nov. 3rd the pain was stated to be somewhat better than on admission; the patient perspired freely at night, whilst the temperature varied from 100° to 101° in the day. He had required chloralamide to make him sleep. Iodide of potassium in increasing doses was given without any benefit. Severe pain continued and the temperature remained elevated, not below 99° in the morning or above 101° in the evening. No apparent change had taken place in the condition of the bone which continued to be extremely tender and uniformly enlarged. On the 16th an incision was made on the outer side of the thigh above the knee. Thickened periosteum was incised and thick yellow pus immediately sprang into the wound. The periosteum was separated from the shaft all round and the bone was generally roughened where exposed. The operation wound was drained and the pain was quickly relieved by the incision. When the patient left the hospital the wound was soundly healed and he has now resumed his work.

Bacteriological report.—A culture tube of broth was inoculated with the pus from the periosteal abscess and incubated at 37° C. for 24 hours. Marked turbidity and a slight flocculent deposit in the culture tube were observed at the end of the first 20 hours. Film preparations were made from the culture and were stained by Gram's method. Short thin bacilli, which were Gram negative, were seen in the films. The original culture was now plated on the surface of jelly by the stroke method. Large numbers of pale bluish-white colonies with an irregular margin, and gradually sloping from the centre towards the periphery, were seen on the surface of this medium at the end of 24 hours at 22° C. These colonies were found to be similar in most respects at the end of 48 hours. We consider this to be a fact of very great importance, as although the surface colonies of certain strains of the colon bacillus are very similar to the colonies of the bacillus typhosus yet the surface colonies at the end of 48 hours are quite different, owing to the much more rapid growth of the colon bacillus. The surface colonies of the colon bacillus at the end of 48 hours are much denser and darker than the typhoid colonies, the irregular margin is much more opaque, and the colonies instead of gradually sloping from the centre towards the periphery, as in the case of the bacillus typhosus, terminate abruptly and thus give quite a different appearance to that which is seen at the end of 24 hours. Numerous colonies from the surface of three gelatin plates were emulsified in 0·85 per cent. solution of normal saline and the emulsions were then tested with positive typhoid serum. The bacilli from each colony were found to be actively motile, while on the addition of typhoid serum, using a dilution of 1 in 50, complete loss of motility and complete "tight" agglutination were obtained in the case of every colony which was examined. The agglutination of the bacilli and the complete loss of motility took place immediately. We consider this means of examining colonies of suspected typhoid bacilli to be of the utmost value as we have never seen agglutination of the bacillus coli with positive typhoid serum such as occurs in the case of the bacillus typhosus, or even with dilutions of 1 in 10, although we have examined some hundreds of strains of the colon bacillus chiefly obtained from the peritoneal cavity. It must be remembered that by this means valuable information can be obtained at the end of 24 hours regarding the nature of a suspected bacillus. Three of the surface colonies from the jelly plates were subcultured into broth and afterwards large numbers of tubes of various media were inoculated from these broth tubes.

The following are the cultural characteristics of this bacillus:—

Agar.—Pale streak with a slightly irregular margin and moist surface. The streak became more opaque and the growth more extensive as time advanced.

Glycerine agar.—Very similar to the growth on agar.

Glucose agar shake.—There was no gas production at the end of one month's growth at 37° C.

Gelatin slant.—Slight pale bluish white streak with a feathery edge was seen at the end of 24 hours' growth.

Neutral red jelly.—Appearances of growth similar to those seen on jelly. No alteration of colour and no liquefaction of the medium had appeared at the end of one month.

Glucose jelly shake.—No gas formation had occurred at the end of one month's incubation.

Litmus mannite jelly shake, litmus cane sugar jelly shake, litmus maltose jelly shake, and litmus lactose jelly shake at 22° C.—The colour of the litmus was unaltered and there was no gas production.

Litmus milk.—This medium was acidified at the end of three days' growth at 37° C., but the milk was not even thickened at the end of one month.

Milk.—Unchanged.

Potato.—Very slight moist pale growth formed on the surface of potato in 48 hours, but it never increased.

Peptone water.—No indol production at the end of 14 days.

Neutral red broth.—A good growth was seen in this medium but there was no alteration of colour at the end of one month.

Glucose broth (anaerobically).—Good growth without any production of gas.

McConkey's medium.—Sodium-taurocholate-litmus-glucose broth culture tubes were inoculated with the bacillus in question and then incubated anaerobically at 42° C. The medium was acidified in 48 hours but there was no evidence of any gas formation.

Agglutination tests.—With positive typhoid serum. Dilutions 1 in 20 and 1 in 50: complete loss of motility and complete "tight" agglutination occurred immediately with each dilution. Dilution 1 in 100: similar result at the end of 30 minutes. With patient's serum. Dilution 1 in 20: diffuse loose clumping and slight loss of motility in 30 minutes. Dilution 1 in 50: very slight loose clumping and very slight loss of motility at the end of 30 minutes.

Professor W. Osler[1] mentions that six cases of "bone lesions" came under his notice among the sequelæ of typhoid fever in the course of one year. In this country, however, bone lesions directly due to the typhoid bacillus appear to be rare. In Keen's monograph on the surgical complications and sequelæ of typhoid fever he gives the bacteriological report of 51 cases of the bone lesions of typhoid fever. In 38 instances the bacillus typhosus was recovered, while in 13 examples the more common pyogenic organisms were found. The case which we have described is of considerable interest owing to the fact that the bone abscess contained the typhoid bacillus in pure culture more than two years after an acute attack of typhoid fever. There is only one other point to which we wish to draw attention—viz., the agglutinative property of the patient's serum. Mr. H. S. D. Browne and Dr. K. E. Crompton,[2] working in the clinical laboratory of St. Thomas's Hospital, found that out of a total of 68 cases only three gave a positive reaction—i.e., complete loss of motility and large tight agglutinations within a period of 30 minutes with dilutions of 1 in 20 and 1 in 50, while of these three cases the patient's serum in one instance was obtained two months after the acute illness had subsided. These authors mention that if they had considered a dilution of 1 in 10 to be a positive reaction then their sum total of positive cases would have amounted to 11, but they very wisely refrain from including such low dilutions amongst their positive results. Fison[3] has stated that he has obtained a positive reaction with dilutions of 1 in 2 and 1 in 9 in 18 out of a total of 21 cases examined three months to eight years after the primary illness. Rénard[4] examined 104 cases, 35 of which gave positive reactions, in five instances 20 years after the attack. This observer, however, was content with a dilution of 1 in 10, except in one of his cases in which a dilution of 1 in 40 was employed. Dr. C. G. Seligmann[5] failed to obtain a positive reaction, even with a low dilution of 1 in 20, in Dr. H. C. Jonas's case of multiple typhoid abscesses two years after the original attack. It must be quite obvious, however, that although positive reactions with such low dilutions may be of some interest they cannot be of the slightest practical value. Mr. Browne and Dr. Crompton have definitely shown that it is quite the exception for the true positive typhoid agglutinative reaction to last for more than a short period

[1] The Principles and Practice of Medicine, fourth edition, 1901.
[2] Note on the Persistence of the Gruber-Widal Reaction in Convalescence from Typhoid Fever, THE LANCET, June 27th, 1903, p. 1798.
[3] Brit. Med. Jour., July 31st, 1897.
[4] Thèse de Paris, 1902.
[5] THE LANCET, Oct. 4th, 1902, p. 931.

after the acute illness has subsided, and that it does not remain for months or even years afterwards, as is so often incorrectly taught. Our own experience is in accordance with the views of these observers.

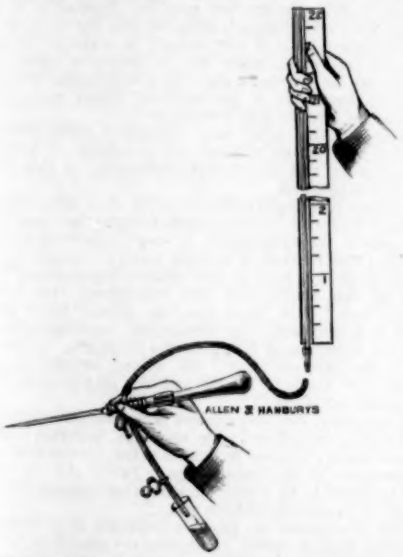
A CEREBRO-SPINAL MANOMETER.[1]

BY FRANK C. EVE, M.D. CANTAB., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN, VICTORIA HOSPITAL FOR CHILDREN, HULL; LATE HOUSE PHYSICIAN, HULL ROYAL INFIRMARY.

I WAS led to devise this simple instrument for measuring the cerebro-spinal pressure by the freedom with which many authors have invoked an excess of intracranial tension as the explanation of various clinical phenomena without any measurement of that pressure.

The following is a description of the instrument with an abstract of as much of the results of about 50 clinical cases as space will allow. It will be seen that the instrument is easy and safe in application and that the diagnostic and therapeutic results have often been surprisingly good. I had believed myself first in the field, but I find that Professor Krönig of Berlin has invented a more complicated instrument for the same purpose.

The instrument consists of the lumbar puncture needle, which is adapted on the one hand to a vertical graduated glass tube and on the other to an exit tube closed by a spring clip. There is also a handle which is detachable. The three hollow needles supplied are suitable for children, large or small adults. These needles are all tempered as tough as possible, so that the risk of their breaking *in situ* is avoided. Included in the case is a hydrometer for measuring the specific gravity of small quantities of the cerebro-spinal fluid. Just before use the whole apparatus is boiled and brought to the bedside in a dish of boiled water. The patient lies on his side with the knees drawn up and the back arched. The head and spinal column must be approximately horizontal. In uncontrollable patients it is



very helpful to pass a long strap beneath the knees and round the shoulders. This arches the spine and renders struggling quite futile. In nervous patients a little cocaine beneath the skin and a little more near the bone is recommended but the pain is not great, being about equal to that of aspiration of the chest.

The skin is carefully cleansed and the needle is introduced at the level of the iliac crests half an inch below and external to a vertebral spine. The spinal cord terminates several inches above this point. The needle is pushed in with a slightly upward tilt. If bone is struck the direction must be slightly altered until the firm soft resistance of the ligamentum flavum is encountered. Once past this no further resistance is felt and the point of the needle finds itself free in the lake of cerebro-spinal fluid amongst the cauda equina. Cerebro-spinal fluid now runs up the manometer tubing (the exit tube having been previously clamped) and its pressure can be read off. Sometimes the cerebro-spinal fluid requires a little coaxing, by milking or pinching the rubber tube before it will flow into the manometer. Forcible aspiration, as by a syringe, should never be employed. Fluid can now be allowed to trickle from the exit tube by removing its clamp and clamping the manometer tube. The needle is withdrawn when the pressure is sufficiently reduced or the requisite amount of fluid has trickled out. An ounce or an ounce and a half is frequently withdrawn and usually leaves the pressure about zero. The fluid is set aside to see if it clots and is examined by the hydrometer, the microscope, or other means.

In children the operation is easy but in an average man the needle has to traverse three inches of flesh, so that one must be prepared for a little patient probing in difficult cases. Rigid asepsis is of course imperative but I have never seen any septic troubles and the fluid will keep in a test tube a surprisingly long time without obvious decomposition. The apparatus shows clearly the oscillations in cerebro-spinal pressure produced by the pulse and respirations. In fact, one has the whole central nervous system in a perfect natural bony plethysmograph.

The first 24 cases were all described to the Hull branch of the British Medical Association. Space now only allows a selection of the more noteworthy cases.

CASE 1.—The patient was a boy, aged 13 years, who three weeks previously had been knocked on the head with a bat. For a week he lay in the hospital in a drowsy, apathetic condition, with headache, facial twitchings, and occasional vomiting. The morning after half an ounce of cerebro-spinal fluid had been withdrawn he was transformed into a bright and cheerful boy. His pressure was ten inches, which is higher than normal (from three to eight inches).

CASE 2. *Pontine hæmorrhage.*—The patient was moribund. Lumbar puncture was accidentally delayed, so that it was only completed when the last few respirations were being taken. The pulse continued a good deal later. The fluid was *pink* and the pressure was eight and a half inches. Three drachms were withdrawn, reducing the pressure to five inches. This pressure was sustained after death with no sign of diminution after several minutes. I attribute this to the engorged condition of the venous system. The pink fluid was a valuable diagnostic guide to the apoplectic origin of the coma; this was verified post mortem.

CASE 3. *Concussion.*—The patient was a boy, aged eight years. The case was diagnosed as fractured base; the fluid, however, was colourless and the pressure was only six and a half inches, which corrected the diagnosis into *concussion*. He was much better after the puncture and recovered.

CASE 5. *Fractured base (followed by meningitis).*—The patient was a man, aged 54 years; he was bleeding from the ear and nose. Lumbar puncture on the eleventh day gave a pressure of seven inches only but the fluid was slightly turbid and *clotted* on standing. This gave a diagnosis of meningitis which was only a suspicion otherwise and which was confirmed by subsequent symptoms and by post-mortem examination. On the thirteenth day the pressure appeared to rise quickly from two and a half to ten inches, owing to fright from a little pool of burning ether which was accidentally lighted near the patient's nose. He was semi-conscious at the time.

CASE 10. *Cerebral thrombosis.*—The patient was a man, aged 57 years, who for a week had been developing left hemiparesis with severe headache. Three days later he was comatose and seemed to be dying, with a slow feeble pulse. With strychnine and two lumbar punctures (three drachms each) he soon recovered consciousness and could talk in three weeks and walk in two months. His recovery seemed remarkable.

CASE 11. *Pneumonia.*—The patient was a man, aged 30 years, with intense toxæmia and violent delirium. One ounce of clear fluid was withdrawn, reducing the high pressure of from 12 to 18 inches down to three inches. No improvement followed. The high pressure in this case was doubtless due to the distended right heart and veins.

CASE 14. *Fractured vault.*—The patient was a child, aged

[1] Made by Messrs. Allen and Hanburys, Limited, 48, Wigmore-street, London, W.

five years. As the clot was extra-dural the cerebro-spinal fluid was not blood-stained. No benefit ensued.

CASE 15. *Acute tuberculous meningitis.*—The patient was a child, aged one year. Lumbar puncture was performed for vomiting and convulsions. The pressure was 13 inches and the fluid was clear. There was very marked improvement for two days. Puncture was repeated on the sixth day when the pressure had again risen to 12 inches. Improvement was now very transient. Diagnosis was verified post mortem. This was my first measurement of cerebro-spinal pressure (February, 1903).

CASE 16. *Chronic hydrocephalus.*—No fluid was obtainable in this case (a child, aged three years), the cranial cavity evidently being shut off.

CASE 17. *Cerebral tumour.*—The patient was a man, aged 45 years. There was a history of pains in the back of the head and neck for three months, together with vomiting and early optic neuritis. Here again, lumbar puncture yielded only a few drops of clear fluid. The pressure was not measureable even on coughing or sitting upright. The probable explanation of this is a sub-tentorial tumour pressing down the cervical medulla and cerebellum into the funnel-shaped foramen magnum. If this be the true explanation lumbar puncture gives a new and useful localising sign in this case. (Since the above was written the necropsy has shown a tumour, as large as a pigeon's egg, in the right lobe of the cerebellum.)

CASE 20. *Pontine apoplexy.*—The patient was a man, aged 45 years. Here again no fluid could be obtained except a few drops at a pressure of nine inches. Post-mortem examination showed a clot in the pons as large as a walnut which had clearly corked off the cerebral from the spinal cavity. Expansion upwards was prevented by the strong tentorium cerebelli.

CASE 21. *Double optic neuritis.*—The patient was a healthy boy, aged ten years. A history of one month's failing vision was obtained without any assignable cause. There were practically no headaches or vomiting. The cerebro-spinal pressure was very high, exceeding 16 inches, which was then the limit of the manometer. After one and a half drachms had been withdrawn it was still 15 inches. The boy was thoroughly at his ease during the process so I tried the effect of mental arithmetic. This first increased the pressure about an inch and then lowered it one and a half inches; grasping with both hands raised the pressure two and a half inches. As usual in a high-pressure case, the oscillation of the pulse was well marked and the respiratory wave was scarcely seen. 11 drachms of fluid were withdrawn, reducing the pressure to four and a half inches. The puncture was repeated in ten days when the pressure was two inches and only half a drachm of fluid could be withdrawn. The punctures appeared to have no effect on the steady downward progress of his vision. He vomited six and 18 hours after the puncture and had a trifling headache. Nine months later the father told me that the boy was well and cheerful but had nocturnal incontinence and slightly impaired memory. He could see a man 200 yards away and his vision was better after an aperient. This case suggests the possibility of disease of cerebro-spinal high tension analogous to glaucoma in the ocular cavity.

CASE 22. *Fractured base.*—The patient was a man, aged 76 years. It was a severe and undoubted case. The pressure was four and a quarter inches. The fluid was pink. Recovery was complete.

CASE 23. *Fractured base.*—The patient, aged 19 years, was comatose. The pressure was from 10 to 13 inches and was reduced to five by withdrawing one and a half ounces of *pink* fluid, after which the pulse was less turbulent. Recovery was rapid and complete.

CASE 24. *Severe chorea.*—The patient was aged 22 years. There was decided benefit from the puncture. The pressure was normal.

CASE 25. *Concussion.*—The patient was aged eight years. Vomiting, teeth-grinding, twitching, and speechlessness were present. Complete recovery followed a few hours after puncture (one drachm). The pressure was normal.

CASE 26. *Tuberculous meningitis.*—The pressure was 19½ inches. The child slept well after puncture—a common result. Improvement was transient.

CASE 27. *Uræmic convulsions with total blindness.*—The patient was a middle-aged man. The convulsions were relieved by venesection but the coma remained. Lumbar puncture under chloroform was performed by Dr. Carter. The pressure was high (16½ inches). On the next morning the man was quite conscious and had recovered much of his eyesight. Dr. W. C. Rockliffe, our ophthalmic surgeon, examined the eyes and found very marked optic neuritis. He was much impressed by the extent and rapidity of the recovery of vision. A second puncture produced no further increase of vision.

CASE 28. *Anomalous cerebellar ataxia.*—The patient was a man, aged 35 years, with a history of pain, numbness, and feeble gait for six years, and a strong family history of adolescent paralysis. The diagnosis was obscure. Extraordinary improvement followed after withdrawing one ounce of fluid at normal pressure, suggesting functional disease. He was at work six months later, quite well.

CASE 29. *Acute tuberculous meningitis.*—The patient was a child, aged seven years, who three months previously I had seen operated on for undoubted tuberculous peritonitis. The child was admitted for acute periostitis of the ankle. No pus was found on incision. Five days later the child had a severe clonic convulsion lasting for two hours, preceded by several days of irritability and sulkiness. The fit ceased 15 minutes after lumbar puncture, which showed a pressure of 15½ inches. Four days later, vision, which apparently had been totally lost since about the time of the fit, was returning. Five months later the mother tells me the child's health is normal in every respect. I have to thank Mr. G. A. Carter for a careful report of this striking case which occurred in my absence.

Negative cases.—The cases where lumbar puncture produced little or no result included Ménière's disease (severe and senile case), alcoholic neuritis and myelitis, neurasthenia, miliary tuberculosis, chronic headache, and gastric tabetic crises. The amount of fluid withdrawn was usually between half an ounce and one and a half ounces and the pressure varied between zero and 18 inches of water.

Conclusions.—The following points appear to be suggested by the above cases:—

1. The therapeutic effect of lumbar puncture is, I think, often greater than it is given credit for. This is difficult to prove or to explain (and hence to believe) but the following may be factors: (*a*) excessive tension is reduced; (*b*) the brain is washed by fresh fluid secreted in place of that withdrawn; (*c*) a temporary cerebral hyperæmia is produced by the blood-vessels dilating to take the room of the fluid withdrawn until a new supply is secreted, or, conversely, a cerebral anæmia due to excessive intracranial pressure may be arrested; and (*d*) a substantial *change* of cerebral environment is produced of which nature may sometimes be able to take advantage.

2. Lumbar puncture has been performed about 60 times with this instrument without any ill-effects, so that the risk is not great, and the further exploration of this therapeutic field is justified.

3. Valuable diagnostic information is often afforded. (*a*) Pink fluid indicates cerebral hæmorrhage, fractured skull (with injury to the dura mater), or severe superficial cerebral laceration (with rupture of the pia mater). Except for the first few drops the fluid is very seldom blood-stained from trauma by the needle with this instrument. (*b*) A faint "spider's web" clot after standing several hours points strongly to meningitis. (*c*) Cytological, bacteriological, or inoculation experiments may give the diagnosis. (*d*) Occlusion of the cerebral from the spinal cavities may be diagnosed (see Cases 16, 17, 20) and this may localise a sub-tentorial tumour (Case 17).

4. In apoplexy, lumbar puncture is conceivably justifiable when the pressure is found to be very high, provided that the pressure is slowly reduced to half its value, not too soon after the occurrence of the hæmorrhage. But if this treatment should be found to be justifiable with a manometer, it would certainly be dangerous without one.

5. Case 12 suggests the possible existence of a disease in the cerebro-spinal cavity analogous to glaucoma in the ocular cavity—that is, a disease of high pressure due to obstructed outflow of secretion. There are many cases of neuritis and atrophy of the optic nerve which still require an explanation.

6. Lumbar puncture is said to be dangerous in cerebral tumour. The sitting-up position advised by some French and German authorities has serious theoretical risks.

7. Credit for therapeutic effects is hard to allocate, but surprisingly good results followed lumbar puncture in fractured base (Cases 22, 23), concussion (Cases 3, 25), post-traumatic cerebral condition (Case 1), cerebral thrombosis (Case 10), very severe chorea (Case 24), uræmic coma and

optic neuritis (Case 2), anomalous ataxia case (Case 28), and tuberculous meningitis (very early stage) (Case 29).

6. Hence, I think that lumbar puncture should be tried as a therapeutic effort in a variety of cerebral conditions which are not hopeless but which are stationary or retrocedent under ordinary treatment. Also that the cerebro-spinal pressure should be measured in every case of lumbar puncture for the present.

This investigation would have been impossible without the kindness of the honorary and resident staff of the Hull Royal Infirmary. My sincere thanks are therefore due to Dr. G. F. Elliott, Dr. Frank Nicholson, Dr. E. O. Daly, Mr. E. H. Howlett, Dr. D. Lowson, Dr. Rockliffe, Mr. E. Harrison, Mr. A. G. Francis, Mr. Guy B. Nicholson, and Mr. Carter; also to Sir Victor Horsley.

Hull.

Medical Societies.

CLINICAL SOCIETY OF LONDON.

Malarial Affection of a Joint.—Intermittent Hydrops of the Joints.—Hydronephrosis due to Moveable Kidney.

A MEETING of this society was held on April 14th, Dr. FREDERICK TAYLOR, the President, being in the chair.

Professor HOWARD MARSH communicated a case of Affection of a Joint possibly due to Malaria. The patient was a man, aged 38 years, in whom there was a history of syphilis and who had lived abroad and contracted malaria. In April, 1903, his knee became the seat of severe pain but without swelling or loss of movement. When first seen in December, 1903, the joint appeared natural but the muscles were very much wasted and were so weak that he was unable to raise his heel from the bed. He complained of agonising pain from his hip to his ankle. Every evening the joint became considerably swollen and measured one and a half inches more than the other, the swelling having a remarkably globular appearance. There was no fluid in the joint and the swelling seemed due to vascular turgescence of the synovial membrane. The patient stated that the joint swelled up in this manner every evening and then gradually returned to its natural size. After the administration of quinine in ten-grain doses twice a day for four days the attacks of swelling had disappeared and the patient recovered muscular power in the limb so rapidly that in three weeks he was able to walk three or four miles without any bad result. Six months later he had a patch of swelling covered by overwarm and hyperæsthetic skin just over the internal malleolus, worse at night, which was similarly relieved by quinine. The blood was examined by Major Ronald Ross and no parasites were found, but on account of the periodicity of the swelling of the knee recurring at intervals of 24 hours, and that it was attended with severe neuralgic pain and relieved by quinine, Professor Marsh believed it was possible that these symptoms were due to malaria and referred to the "brow ague," neuralgiæ, and other symptoms occurring in malarial subjects.—Sir PATRICK MANSON remarked that Professor Marsh's case had again raised a question which had been often discussed but never settled—namely, the position of certain irregular manifestations of malaria. There were two ways in which these manifestations might be related to malaria—first, as a direct symptom of the disease and, secondly, as a condition due to the lowered vitality caused by the malaria. Thus syphilitic or other poisons produced a greater effect in a person who had had malaria than in a healthy person. In Professor Marsh's case he could see no reason for supposing that the condition of the joint was due to malaria, as the patient presented no symptoms which were pathognomonic of that disease. The periodicity was quotidian, a periodicity which was common to many conditions and was usual in all septic fevers. In malaria the periodicity would be typically tertian or quartan. Moreover, in this case the exacerbation of symptoms had been in the evening, which was a common event in syphilis but rare in malaria; the typical feature of malarial symptoms was their occurrence before midday. There were no other manifestations of malaria, such as fever and enlargement of the spleen. He paid less attention to the absence of the malarial parasite from the blood, for quinine had been previously administered; it would have been more useful to examine the blood before this administration. He would like to know how recently the patient had been exposed to malarial infection, for in his experience no active evidences of malaria ever occurred after three years at the utmost from such possible infection. He referred to various conditions that had been termed irregular malaria, notably periodic nervous, cutaneous, and gastric symptoms. He did not know of any that had had the two great malarial tests applied to them—namely, finding of the parasite and observance of the malarial periodicity, though he referred to two cases of urticaria which were probably malarial on account of their clinical features. The malarial parasite undoubtedly had a predilection for certain organs but he doubted if the joints should be included among them.—Lieutenant-Colonel T. R. MULRONEY, I.M.S., had seen many cases of malaria complicated by syphilis, the manifestations of which were more decided than in non-malarious subjects and were often temporarily relieved by quinine. But iodide of potassium was necessary to cure them permanently as in a case which he quoted of affection of the ankle-joint.—Professor MARSH replied and stated that over three years had elapsed since the man had been abroad.

Professor MARSH also made a communication on three cases of Intermittent Hydrops of the Joints occurring in a woman aged 28 years, a man aged 42 years, and a boy aged 12 years. These three cases were in all their essential features very similar to each other. The effusion in the joints returned with remarkable periodicity: in two every 14 days and in one every 12 days. In all the local condition—mere increase of synovial fluid—was the same. In all, the joints in the intervals seemed normal. These cases were typical instances of the usual form of intermittent hydrops of the joints and they closely resembled those which were observed or recorded by Dr. E. J. Brackett and Dr. F. I. Cotton.[1] In these examples the periodicity was always marked but the interval between the attacks varied in different individuals from three or four days to 30 days or more, the most frequent interval being 14 days. In several instances the attacks continued for three, four, or even more years. Some cases after showing definite periodicity lost this feature and the attacks became irregular both as to the time of their recurrence and their severity. The pathology of this affection was not known. It might be that under the influence of some cause not yet recognised a vaso-motor disturbance led to synovial effusion of a periodic character. In regard to treatment, arsenic was the only agent which appeared to be useful. These cases were not only interesting on their own account but because they might lead to errors in practice, for the recurring effusion might very well suggest the presence of a loose cartilage or a synovial fringe for which a useless operation might be performed.—Mr. F. C. WALLIS expressed the belief that such cases as those now described by Professor Marsh were due to some micro-organism or its toxin and thought it would be interesting to know the results of a series of cultures taken from the fluid in the joint. He had opened and washed out the affected joint in one case with advantage.—Dr. F. J. POYNTON pointed out that micro-organisms in affections of the joints were commonly confined to the subendothelial layer and were rarely found in the fluid. He was not of opinion that the cases described were of microbic origin but rather of the nature of an œdema or an urticaria. It was, however, well known that the subcutaneous injection of certain toxic and antitoxic sera, such as those of diphtheria and tetanus, could produce synovial effusion. Had urticarial or erythematous lesions been observed in Professor Marsh's cases.—Dr. F. W. FORBES-ROSS thought that the effusion was probably a serous hæmorrhage into the joint, due to a diminution in the coagulability of the blood. Malaria was known to predispose to this condition and œdema often occurred in such subjects after the administration of mercury.—The PRESIDENT asked on what grounds arsenic had been given.—Professor MARSH said that those who had seen many of these cases recommended arsenic but some cases did not improve with it, whereas most cases spontaneously improved. He did not think that the condition was of infective origin, for there was no structural alteration of the joints, even after repeated attacks. He had not examined the synovial fluid or the blood in his cases. Dr. A. E. Garrod had told him of three cases which he had seen, two of which were the direct sequelæ of gonorrhœal rheumatism.

Mr. F. J. STEWARD communicated two cases of Hydronephrosis due to Moveable Kidney. These two cases were

[1] Boston Medical and Surgical Journal, vol. cxlv., 1901.

brought forward on account of the marked degree of hydronephrosis caused solely by the undue mobility of the kidney which resulted in the formation of a sharp kink in the upper part of the ureter, as described by Gigon in 1856. The first case was that of a young woman, aged 20 years, who had had attacks of pain in the right loin for eight weeks before admission to Guy's Hospital in February, 1900. A large, freely moveable, fluctuating tumour was found in the right loin. The tumour varied somewhat in tenseness but never disappeared, the pain being worse when the tumour was most tense. The tumour was explored through a lumbar incision and found to be a large hydronephrosis caused by a sharp bend in the upper part of the ureter which was easily straightened out by pushing the kidney up into its normal position. The kidney was fixed by silk sutures to the parietes and the wound was closed. The patient had no further pain and the average daily excretion of urea increased from 167 grains to 277 grains. On examination nine months later the tumour was found to be markedly smaller but it had not disappeared. The second case was that of a girl, aged 18 years, who was admitted into Guy's Hospital 16 weeks after a right-sided hydronephrosis had been opened and drained. The cause of the condition was found, as in Case 1, to be a kink of the upper part of the ureter which was straightened out by pushing the kidney upwards. The kidney and the upper part of the ureter were fixed to the parietes and a catheter was passed down the ureter from the old drainage opening in the convex border of the kidney. Six months later there was no return of the hydronephrosis and the kidney remained firmly fixed in its normal position.—Mr. R. CLEMENT LUCAS referred to four cases which he had recorded at the meeting of the British Medical Association in 1891, in all of which a moveable kidney had terminated in hydronephrosis. In all there had been intermittent attacks of very severe pain from time to time and these symptoms indicated a kinking and blocking of the ureter. Sometimes the conditions could be cured by fixing the kidney in its proper position but in one case he had watched the gradual destruction of the kidney. In another case the condition was cured for some years by a pregnancy but some years later considerable trouble arose from the formation of pyonephrosis. The kidney often became fixed in the wrong situation, with the result that recurrence took place.—Mr. WILLIAM TURNER related the details of a similar case on which he had operated recently. He speculated as to the mode of infection that converted a hydronephrosis into a pyonephrosis.—Dr. FORBES-ROSS pointed out the importance of the direction in which the kidney subsequently shrank. As they could not foretell this direction would it not be better to examine the opposite kidney by laparotomy and then remove the hydronephrotic kidney if the other was healthy?—Mr. STEWARD replied.

LIVERPOOL MEDICAL INSTITUTION.

Aspiration of the Chest.—Paramyoclonus Multiplex.—Hæmorrhage due to High Arterial Tension.—Floating Kidney.—Prognosis in Pulmonary Tuberculosis.

A MEETING of this society was held on April 13th, Dr. JAMES BARR, the President, being in the chair.

Dr. WILLIAM WILLIAMS demonstrated an improved method of Aspiration of the Chest.

Dr. J. C. M. GIVEN related a case of Paramyoclonus Multiplex occurring in a man, aged 21 years. The contractions were unilateral in distribution, affecting mainly the muscles of the forearm, the leg, and the abdomen on the left side. The patient's mother had suffered from chorea gravidarum whilst pregnant with this child. He had had two severe accidents at long intervals to which he attributed the commencement and the increase of the disease. The administration of $\frac{1}{120}$th of a grain of hyoscine hydrobromate twice daily had been followed by distinct improvement.—The PRESIDENT, Dr. T. R. GLYNN, and Mr. R. C. DUN discussed the case.

Dr. A. C. WILSON related five cases of Hæmorrhage apparently due to High Arterial Tension. Case 1 was that of a youth, 20 years of age, who from early childhood had been subject to bleedings from the nose. During one week he had two severe attacks of hæmatemesis. The radial pulse denoted high arterial tension and there was no pain or tenderness over the epigastrium suggestive of gastric ulcer. The patient quickly improved on taking large doses of perchloride of iron. Case 2 was that of an elderly woman the subject of arterio-sclerosis. She was suddenly seized with dizziness and her congested face and slow high-tension pulse threatened an attack of apoplexy. Fortunately this was averted by profuse bleeding from the nose. Case 3 was one of cerebral hæmorrhage which occurred in a man, 38 years of age. There were aphasia and paralysis of the right side. He gradually made a complete recovery. Case 4 was that of a female, 45 years of age, who for the last 17 years had had attacks of hæmoptysis, at one time thought to be due to pulmonary tuberculosis. Her general health was excellent; the sputum did not contain tubercle bacilli. Case 5 also was a case of hæmoptysis. The patient, a man, 48 years of age, had for six years been subject to slight attacks of bleeding. There were no physical signs of pulmonary tuberculosis and the sputum did not contain tubercle bacilli.—The cases were discussed by Dr. GIVEN, Mr. RUSHTON PARKER, Dr. GLYNN, and Dr. JOHN HAY.

Dr. CHARLES PINKERTON related a case of Floating Kidney in which the symptoms closely resembled those due to gall-stones. The patient was a married woman, 38 years of age, who during the last 18 months had 12 attacks of great pain in the right side with sickness followed by jaundice. She had lost four stones in weight during that time. Physical examination revealed a floating kidney and a dilated stomach. A belt for the kidney was ordered but before it arrived she had another attack, a typical Dietl's crisis, attended, however, by jaundice. After wearing the belt she rapidly gained in health and weight and had remained perfectly free from all attacks since.—Dr. T. R. BRADSHAW referred to a case the converse of this in which a woman had a freely moveable kidney and hepatic pains but an operation for the removal of gall-stones completely cured her.

Dr. R. J. M. BUCHANAN read a paper on the Prognosis in Pulmonary Tuberculosis. The pulmonary infection was peculiar, affecting as it did organs which lent themselves, by structure, vascularity, mobility, and communication with the exterior, to easy dissemination and secondary infections. The difficulties of prognosis were very great and the clinical course of the disease was full of surprises. It was pointed out how dangerous it was to relate closely the pathological and clinical stages in forming a prognosis and reference was made to the post-mortem proofs of the spontaneous curability of pulmonary tuberculosis. The question of predisposition, acquired or hereditary, was discussed. In reference to the latter it was considered that evidence was gradually accruing in support of a less gloomy view being taken of the prognosis in such cases and that an inherited predisposition was general rather than specific to tubercle. The value of physical signs was fully considered—cough, hæmoptysis, mixed infections, and complications. The value of constitutional symptoms as prognostic factors was discussed at length, with special reference to the temperature, nutrition, and circulation. In reference to the duration and course of the disease difficulties arose in obtaining the exact date of incidence. In conclusion, he advocated that the prognosis in pulmonary tuberculosis should be based upon a careful study and estimation of (1) the general constitutional condition of the patient; (2) the effects of the disease upon the body temperature, nutrition, and circulation; (3) a recognition of the extent of the lung involved and the ability of that left to carry on the respiratory process; and he said (4) that the above were the important factors and in comparison with them physical signs as they interpreted local pathological "stages" of the morbid process occupied a subordinate position. Valuable as might be their diagnostic importance they formed an untrustworthy basis for prognosis.—Dr. NATHAN RAW said that the virulence of the infection and the resisting power of the tissues decided the fate of the person attacked. A predisposition to tuberculosis often made the prognosis unfavourable. Treatment commenced early and maintained under proper surroundings would of course favour arrest of the disease.—Dr. HAY said that an opinion based upon the physical signs always under-estimated the extent of the lesion. In forming an opinion as to the prognosis due consideration should always be given to the result of previous treatment.—Dr. W. B. WARRINGTON, Dr. J. HILL ABRAM, Dr. WILSON, Mr. W. B. BENNETT, and Mr. O. BOWEN also took part in the discussion.

FORFARSHIRE MEDICAL ASSOCIATION.—A meeting of this society was held on April 7th in the School of Medicine, Dundee, Dr. James Orr (Tayport) being in the chair.—Dr. R. C. Buist read notes on three cases of Icterus Gravis or Grave Jaundice—terms which he used

as meaning severe jaundice associated with unconsciousness. The first patient was a woman who was at that time in the seventh month of her fifth pregnancy and who in a previous pregnancy had a transitory jaundice. On admission to hospital she was in a state of coma and collapse, suffering from very marked jaundice, vomiting, constipation, petechial hæmorrhages, and all the other symptoms described in acute yellow atrophy of the liver. The liver dulness was greatly diminished; there was no leucin or tyrosin in the urine. Two pints of normal saline solution were introduced into the left breast and five ounces of saline solution were given every two hours per rectum. Calomel and mistura alba were given by the mouth. After 24 hours, the bowels being still unmoved, a large soap-and-water enema was given, which proved effectual. The saline enemata were continued for several days. Under this treatment, in spite of the onset of premature labour, the patient made a complete recovery. The second patient was a woman who with catarrhal jaundice of a few days' standing suddenly became unconscious and delirious. The bowels were found to be overloaded and a sharp purge was quickly followed by recovery with no bad symptoms. The third patient was also a woman who, while suffering from jaundice, suddenly developed grave symptoms similar to the first case. No leucin or tyrosin was found in the urine. Death took place on the seventh day after the onset of bad symptoms. On post-mortem examination the liver was found to be very small and shrunken, very soft and flabby, showing on the surface and section orange-yellow patches. The condition was without doubt one of acute yellow atrophy of the liver. The chief point for consideration was, Could the first case be called one of that disease also and if so could the favourable ending be the result of the treatment? Dr. Buist considered that both answers must be in the affirmative. The condition being one of toxæmia the rational treatment was to dilute the toxin as much as possible and this was accomplished by the saline injections. He mentioned that he could not agree with the usual statement that acute yellow atrophy was most common in pregnant women; he considered that both sexes were equally liable to be attacked by the disease and that early adult life was the commonest age.—Professor J. A. C. Kynoch who had seen the first case agreed that it was one of acute yellow atrophy.—Dr. J. Mackie Whyte, Dr. D. M. Greig, Dr. W. E. Foggie, and others also took part in the discussion.—Professor Kynoch read a paper entitled "A Retrospect of 100 Gynæcological Laparotomies." The cases were tabulated as follows: ovariotomy, 54; extra-uterine gestation, 10; fibromyomata, 11; tubal disease, seven; oöphorectomy, seven; ventrofixation of prolapse, three; exploratory operations, four; ventral hernia, two; and Cæsarean section, two. Among these 100 cases there were nine deaths.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on April 14th, Dr. D. Lloyd Roberts being in the chair.—Dr. J. B. Hellier (Leeds) narrated a case of Hæmorrhage into a Small Ovarian Cyst accompanied by flooding of 12 days' duration during an inter-menstrual period in a young unmarried patient.—Dr. G. W. Fitzgerald (Manchester) showed a Hæmatoma of the Broad Ligament which occurred in connexion with torsion of the Fallopian tube in a woman, aged 42 years, who had ceased to menstruate for some months.—Dr. W. K. Walls (Manchester) showed Three Uteri removed by Vaginal Hysterectomy for Cancer of the Body. The indications for operation were hæmorrhage after the menopause, accompanied by enlargement of the corpus uteri. It was possible to curette in these cases without finding any evidence of malignant disease and bleeding with enlargement after the menopause was sufficient to justify removal of the uterus.—Dr. T. B. Grimsdale (Liverpool) related a case of Intraperitoneal Rupture of the Bladder during the first stage of labour in a primipara. A portion of the fundus of the bladder sloughed and on opening the abdomen a gallon of urine was removed from the peritoneal cavity. The bruised portion of bladder, which was perforated in the centre, was excised and the wound was closed with fine silk. The patient made an easy recovery.—Dr. A. J. Wallace (Liverpool) read a paper on Removal of the Cancerous Cervix by the Abdominal Route with Pelvic Dissection based on an experience of ten cases. Beginning with the purely abdominal route he had been led to employ the combined operation in preference. The uterus, adnexa, pelvic connective tissue, and glands were first freed by laparotomy and then extracted per vaginam. Details of the ten cases were given. Three operations were incomplete. Out of the ten cases the iliac glands were cancerous in three and the right obturator gland in another. In two cases the glands were diseased although the primary lesion was in an early stage. The uterus being freely moveable and all signs of infiltration being absent, Dr. Wallace considered that in properly selected cases the combined operation promised better chances of success than those afforded by the vaginal route.—Sir W. J. Sinclair condemned the operation on the ground that cases which could not be dealt with by vaginal hysterectomy aided, if necessary, by paravaginal incision were not suitable for operative treatment at all. The mortality of the operation under consideration was very high and many of the patients who recovered continued to suffer through urinary fistulæ.—Dr. H. Briggs had not performed the operation. He considered that any advance in operative technique should be made strictly on the lines of progress in general surgery.—Dr. A. W. W. Lea pointed out that Sir W. Sinclair was in the habit of treating by vaginal hysterectomy many cases of cervical carcinoma which would be regarded as inoperable by most gynæcologists.

LARYNGOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on April 7th under the presidency of Mr. Charters J. Symonds. The following cases and specimens were shown:—Dr. H. J. Davis: a case of (?) Traumatic Perforation of the Nasal Septum in a boy, aged 17 years, who was engaged in flour mills. Epistaxis had followed the injury. He also showed a piece of Blue Chalk, half an inch long, which had remained for three weeks impacted in the respiratory passage of a boy, aged 10 years. Dyspnœa and bronchitis had supervened. The chalk was dislodged and swallowed during laryngoscopic examination and was passed per rectum.—Dr. W. Jobson Horne showed a case of Malignant Disease of the Larynx.—Dr. W. H. Kelson exhibited a case of Lingual Growth in a man, aged 45 years. Some doubt was expressed as to whether this was a papilloma or a thyro-lingual cyst.—Mr. H. L. Lack exhibited a case of Deformity of the Hard Palate and Teeth due to nasal obstruction in a boy with facial paralysis, showing the factors in the causation of high-arched palate.—Dr. L. H. Pegler showed a case of Broadening of the External Nose caused by tense symmetrical swellings attached to the cartilaginous septum. He also exhibited an Obstinate Crusting and Pus Formation in a man, aged 40 years, shown for diagnosis. Both turbinals had been removed.—Mr. Robinson showed a case of Angio-fibroma of the Vocal Cord.—The President exhibited a very interesting case of Angioma of the Larynx in a man, aged 34 years. He also showed a woman, aged 52 years, in whom the Larynx and Thyroid Gland had been Extirpated for Cancer; and also a case of Papilloma of the Larynx in a man, aged 30 years.—Mr. E. B. Waggett showed a case of Frontal Sinus Empyema cured by operation, and Dr. H. Tilley exhibited two cases. The first was that of a woman, aged 31 years, with Subglottic Hyperplasia, causing stenosis of the trachea and some difficulty in breathing. It was thought to be probably syphilitic in origin. The second case (one for diagnosis) was in a man, aged 64 years, with Recurrent Paralysis of the Right Vocal Cord and some difficulty in swallowing. The right pupil was contracted and there were slight ptosis of the eyelid and wasting of the upper part of the right trapezius. It was considered by some of the members present that the cause of the trouble was peripheral and not central.—Dr. J. Donelan showed a man, aged 39 years, with Lateral Ulceration of the Larynx. There had been hoarseness for about two months but there was no history of syphilis.

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN.—A quarterly court of the directors of the above society was held at 11, Chandos-street, London, W., on April 12th, Mr. Christopher Heath, the President, being in the chair. Three new members were elected. The treasurer announced that a legacy of £250, duty free, had been received from the executors of the late Mrs. Jane Begley. One new widow and one orphan were granted relief at the rates of £50 and £12 per annum respectively. The sum of £1293 had been paid in half-yearly grants in January to the annuitants of the charity. 53 widows and 17 orphans are now on the books of the society. The date of the annual general meeting was fixed for Monday, May 22nd, at 5 P.M., at the offices of the society.

Reviews and Notices of Books.

International Clinics. Vol. II. Fourteenth Series, 1904. Edited by A. O. J. KELLY, A.M., M.D., Philadelphia, U.S.A. London: J. B. Lippincott Co. 1904. Pp. 314.

THIS volume maintains the high standard of excellence which has characterised its predecessors. The first portion of the book is occupied with a series of communications on Diseases of Warm Climates. The first article is by Dr. C. F. Mason and is entitled "The Spread of Diseases by Insects, with Suggestions regarding Prophylaxis." The science of preventive medicine has made great advances during recent years and in no department have more far-reaching results been obtained than in the demonstration of the important part borne by certain insect pests in the spread of disease. Dr. Mason asserts that at the present time insects are known to spread the following diseases: yellow fever, malarial fever, filariasis, spotted fever, sleeping sickness, dengue, anthrax, cholera, plague, dysentery, epidemic diarrhœa, and tuberculosis. The part that insects play in disseminating the above diseases is fully recognised with regard to some of them, whilst in the case of others absolute proof is not yet forthcoming. The insects the culpability of which as carriers of disease has been established are the mosquito, the house-fly, the nagana or tsetse fly, and ticks, while fleas, lice, and especially bed-bugs are under strong suspicion. The fact that certain diseases require for continued existence the presence of a particular insect explains the geographical distribution and the seasonal prevalence of these diseases, which must be the same as those of the insect carriers. Dr. Mason draws attention to the important difference that exists in the action of the mosquito as an intermediate host in the case of yellow fever and malarial fever respectively. In the former the mosquito appears to be the permanent, and the human body the temporary, host of the pathogenic parasite; the disease lasts only a few days and is followed by immunity to further attacks. In malarial fever the patient is the permanent host and having once been infected may harbour the disease for years, and outbreaks may therefore occur outside the geographic range of the mosquito. These facts merit more notice than they have hitherto received. Dr. Mason's remarks on prophylaxis are also interesting. He mentions the results that have been obtained by the sanitary department in Havana since efforts have been made devoted to the extermination of the yellow fever mosquito. For more than two years no case of yellow fever has originated in Cuba and though the disease has repeatedly been brought there from other infected points it has not spread. Previously Cuba had not been free from yellow fever for about 150 years.

Amongst other articles in this section the following may be mentioned: Recent Progress in Tropical Medicine, by Dr. John McCrae; Sleeping Sickness, by Dr. C. Jarvis; and Liver Abscess and its Treatment, by Mr. James Cantlie. The article on Uncinariasis (ankylostomiasis) also contains a large amount of information concerning the genus uncinaria. The pathology, the symptomatology, and the treatment of the disease in human beings are also carefully considered.

In the section on Treatment will be found some contributions on the therapeutics of diseases of the cardio-vascular system. Dr. J. B. Nichols (Washington) writes on the Etiology, Diagnosis, and Treatment of Arterio-sclerosis. Dr. Nichols believes that physicians are apt to look upon the condition of arterio-sclerosis in a rather academic manner and that they often fail to realise the very important and practical influence which it exerts upon the system and the organs of the body. We cannot agree with this remark, for since the writings of Sir William Gull, Dr. H. Gawen Sutton, and others, general attention has always been given to the significance of hardened arteries and increased blood pressure. Dr. Nichols's remarks in general, however, are well worthy of perusal and study.

Amongst the other contributions to this volume we may mention the following: Osteomalacia, by Dr. George E. Malsbary; Intestinal Obstruction in Children, by Dr. C. J. Cumston; and Subparietal Injuries of the Kidney, by Dr. Miles F. Porter. We can recommend this volume as a most interesting one and as a valuable addition to the already extensive series of "International Clinics."

The Nervous Affections of the Heart. By GEORGE ALEXANDER GIBSON, M.D., D.Sc. Edin., F.R.C.P. Edin. London and Edinburgh: Young J. Pentland. 1904. Pp. 99.

THIS volume comprises the Morison lectures delivered before the Royal College of Physicians of Edinburgh in 1902 and 1903 and they are now reprinted from the *Edinburgh Medical Journal*, in which they were originally published. The first section consists of three lectures dealing with sensory disturbances of the heart from the clinical, pathological, and therapeutical aspects; the second section similarly is concerned with motor disturbances; and three lectures deal respectively with rate, rhythm, and force. The first lecture is prefaced by a very entertaining historical sketch of the various steps by which our present knowledge has been gained; this indicates a wide range of interesting reading, together with some happy guesses at the nature of the maladies of sundry distinguished persons. Dr. Gibson mildly rebukes Dr. Huchard for an attempt to associate the name of Rougnon with angina pectoris and objects to Professor Osler's recognition of the two varieties of true and false angina. The description of the phenomena of an attack of cardiac pain is written with considerable vivacity and due regard is paid to the alteration in the skin, the disturbance of digestion, and the modifications of the renal secretion. The lecture on pathology is mainly occupied with an account of the innervation of the heart, the description being materially assisted by numerous diagrams. Dr. Gibson speaks very enthusiastically of the results of therapeutic measures. He fearlessly asserts that "in not a few of the worst cases, even when death seems to stare the patient in the face, judicious treatment brings about recovery which may for several years remain unimpaired." The general line of treatment here advocated does not present any novelty, although it will probably be useful to refer to it from time to time. With the second section upon motor disturbances we are once more entertained with references to the literature connected with the movements of the heart. The author in turn cites Homer, Lucretius, Horace, Isaiah, and Shakespeare. After a brief rest he refers to Aristotle, Herophilus, Rufus of Ephesus, Galen, and William Harvey; then there is another pause before we are hurried on to Laennec, Walshe, and Stokes. The subject of the lecture is then approached more seriously and bradycardia and tachycardia are considered. The two concluding lectures on rhythm and force are full of light entertainment as well as instruction. Dr. Gibson ranges far and wide in search of apposite illustrations and he does not lose sight of the main object of a lecturer, the judicious selection of a flavouring agent to make the mixture palatable. Of the influence of tobacco upon cardiac rhythm he says: "Certain forms of tobacco are almost innocuous, others are pestilential in the highest degree; and some of the tobaccos that have obtained a very great vogue on account of the literary romance thrown around them are without doubt the most deleterious of the whole series." These broad terms are not very helpful but the Scylla and Charybdis of a medical lecturer may be represented by professional etiquette, on the one hand, which

forbids advertisement, and the legal aspect, on the other, which checks libellous identification, and between these two the lecturer must steer with difficulty and anxiety.

Transactions of the Ophthalmological Society of the United Kingdom. Vol. XXIV. Session 1903-04. London: J. and A. Churchill. 1904. Pp. li.—386. Price 12*s.* 6*d.* net.

THIS well-arranged work recording the Transactions of the British Ophthalmological Society during the last session contains many papers of interest. The presidential address delivered by Mr. John Tweedy dealt with the Relation of Ophthalmology to General Medicine and Surgery and to Public Health. He pointed out that there is a disposition amongst ophthalmologists to specialise to too great an extent, to split this branch of medicine into two departments—the optical and the medico-surgical—which tendency should be strongly resisted on the ground that "no one can safely and intelligently deal even with the optical defects of the eye unless he has an adequate knowledge not merely of the structure and diseases of the eye but of the varied relations of the eye to the whole organism." The book is arranged in a topographical manner, so that those who are interested in the cornea, the retina, or the orbit can turn to that section and read all the cases that have relation to it which have been brought before the society in the course of the year. Many rare forms of disease are here recorded which will certainly assume importance when collected and compared with others, and a knowledge of which it is one of the principal objects of the society to diffuse amongst its members. For example, a case is recorded by Mr. E. Nettleship bearing upon Mr. William Anderson's case of pemphigus of the conjunctiva presented at a previous meeting and offering some remarkable features, the vesicles appearing with extraordinary rapidity, so that, as the relatives stated, "we could see them come up in a minute or two, those in the mouth generally coming at dinner, whilst he once nearly choked from a large one that formed in the throat." Such details in affections that are rare or that are obscure in origin often complete the picture of the disease and prove of high value. The same observations apply to various cases here recorded of peculiar diseases of the cornea and to cases of congenital anterior staphyloma, in one of which a very careful examination was made by Mr. E. Treacher Collins, leading him to believe it to be due either to intra-uterine transmission of infection, which he thinks highly improbable, or to maldevelopment or, as is most likely, to intra-uterine inflammation. There is a note on Vascular Changes in the Retina by Mr. R. Marcus Gunn, which led to an interesting discussion in which Mr. R. W. Doyne, Mr. W. A. Frost, Mr. Nettleship, and the late Mr. A. Q. Silcock took part, the question at issue being the existence of ophthalmoscopic evidence of actual retardation in the venous flow where an artery crosses over a vein.

A subject of considerable general interest was brought under the notice of the society in a paper read at the close of the year by Dr. A. Freeland Fergus, having the title of "Average Visual Acuteness." In this communication Dr. Fergus points out that uniformity of illumination of the object is of much importance, whilst it is often neglected. Then, in regard to normal visual acuteness, while Snellen's types are well adapted for testing the visual acuteness, numerous cases are met with in practice in which the subject is unable to read $\frac{1}{1}$; whilst in view of the provisions of the Workmen's Compensation Act and of medico-legal inquiries and the frequency with which work is carried on after injury to one eye without loss of wages, it would be advisable, in order that just compensation should be given, to form a committee to determine as far as possible what vision is required for various avocations in life.

Mr. N. Bishop Harman has an interesting paper on the judgment of the size and the distance of objects, which he shows to be due not so much to any effort of accommodation but to the appreciation of the muscular effort in effecting convergence. Dr. W. M. Beaumont gives a note on the Eye Symptoms associated with Rheumatoid Arthritis, with especial reference to the field of vision, and there is a good article on Trichiasis and the Operations for its Relief by Mr. W. E. Cant. There are several good plates and many illustrations in the text. The volume also contains a report on Sight-testing by Spectacle Makers and a preliminary report of the colour vision committee.

Progressive Medicine: A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., assisted by H. R. M. LANDIS, M.D. Vol. III. London: Rebman, Limited. 1904. Pp. 284. Price 12*s.* net.

THIS volume is composed of four sections by different writers. The first deals with Diseases of the Thorax and its Viscera, including the heart, the lungs, and the blood-vessels, and is contributed by Dr. William Ewart; the second is upon Dermatology and Syphilis, by Dr. William S. Gotthell; the third is on Diseases of the Nervous System, by Dr. William G. Spiller; and the last treats of Obstetrics and is contributed by Dr. Richard C. Norris. The wide range of reading necessitated for the purposes of this digest is sufficiently demonstrated by the foot-notes which give the references to the original papers. Dr. Ewart appears to have been hampered by an excessive amount of material and his account is almost too condensed to serve as much more than an indication of the sources whence instructive information may perhaps be obtained, but for this purpose it will be of great assistance to those who desire to follow the progress of recent literature. The section on dermatology has numerous illustrations from the author's cases and his account presents a running commentary in which we find details of his observations, his cases, and his treatment, in addition to the digest of recent literature. The sections upon the nervous system and on obstetrics are written with greater freedom from the personal equation and in greater detail and are accordingly likely to be of greater service to those who are unable to obtain access to the original papers. As a whole this volume is certain to save much time for all who wish to study the subjects with which it deals.

LIBRARY TABLE.

Atlas and Epitome of Operative Gynecology. By Dr. OSKAR SCHAEFFER. Authorised translation from the German with editorial notes and additions. Edited by Professor J. CLARENCE WEBSTER. With 42 coloured lithographic plates and many illustrations in the text, some in colours. London, Philadelphia, and New York: W. B. Saunders and Co. Pp. 138. Price 13*s.* net.—The appearance of this English translation of Dr. Schaeffer's well-known "Atlas of Operative Gynæcology" is to be welcomed because there is nothing quite like it available for English readers. The book is edited by Professor Clarence Webster who has added various remarks and emendations of his own which increase the value of the work. The book gives a good idea of the author's experience and practice and on the whole is written in a judicious and clear manner. Some of the statements sound a little peculiar to English readers—for example, the statement on p. 80 that a weight extension may be used with a Barnes's bag. This is, of course, practically quite impossible but it can be done with a Champetier de Ribes's bag. Then, again, on p. 85 we are told that vaporisation of the uterus is contra-indicated in cases complicated with appendicitis; surely no surgeon would dream of performing any

such operation on a woman suffering from an attack of appendicitis. The illustrations are very good and serve their purpose and on the whole the book is a satisfactory example of an atlas of operative work, always a difficult subject to treat in such a way. The translation is in parts rather crude and literal.

Midwifery for Midwives. By W. DENISON WIGGINS, M.R.C.S. Eng., L.R.C.P. Lond., D.P.H. With 44 illustrations. London: Baillière, Tindall, and Cox. 1904. Crown 8vo, pp. xv.—249. Price 3*s.* 6*d.* net.—This little book is designed to cover the requirements of the examining board authorised by the Midwives Act, 1902. The very good advice is given by the author that candidates would be well advised to obtain a certificate of efficiency in general nursing covering a period of three years before taking up this special branch of obstetric nursing. As he points out, in this way they come to the subject with a considerable amount of knowledge concerning technical terms and, more important still, with an appreciation of what is meant by surgical cleanliness, perhaps the most important of all requirements in a monthly nurse. This little book is clearly and succinctly written and the author has not committed the mistake of going into too much detail. We can recommend it as suited to the class for whom it is intended.

A Short Practice of Gynæcology. By HENRY JELLETT, B.A., M.D., B.Ch., B.A.O. Dub., ex-Assistant Master, Rotunda Hospital. Second edition, revised and enlarged. With 223 illustrations. London: J. and A. Churchill. 1903. Pp. 403. Price 10*s.* 6*d.* net.—A considerable amount of revision has been undertaken by the author in the preparation of the second edition of his well-known text-book on gynæcology. The work has been much enlarged and altered in size so that the page is a good deal larger and the figures are correspondingly clearer. Nearly 100 new illustrations have been added and they do much to render the work more valuable and attractive. The book will prove interesting not only to the student but also to the teacher as it gives him a clear exposition of the current teaching of the Dublin school of gynæcologists. As we said of the first edition, the book is written clearly and practically and evidently by one who is a good teacher and understands the value of method in his writings. It is a book which we have no hesitation in recommending strongly to the student and the second edition is no less likely to be received favourably than was the first.

A Complete Handbook of Midwifery for Midwives and Nurses. By J. K. WATSON, M.D. Edin. London: The Scientific Press, Limited. 1904. Pp. 348. Price 6*s.* net.—As the author points out in his preface, the question as to whether in a book for midwives subjects should be dealt with which it is never intended the midwife should have anything to do with in the practice of her art, is a difficult one to decide. Dr. Watson thinks that the answer should be in the affirmative and accordingly his aim in writing this work has been "too much" rather than "too little." The wisdom of this procedure seems to us somewhat doubtful and we are inclined to think that the subject is considered in rather too great detail in this handbook. It will be of value to women with a good deal of general education who propose to become midwives, but we are afraid that the style in which it is written will make it too complex for the ordinary, only too often but poorly educated, woman who contemplates following this occupation. The whole subject of midwifery is carefully considered and there are two useful appendices, the first dealing with the nursing of gynæcological cases and the second giving in detail the more important of the rules for the guidance of midwives issued by the Central Midwives Board. The book is a useful one and likely to be of assistance to those women who are sufficiently well educated to avail themselves of its help.

JOURNALS AND MAGAZINES.

Edinburgh Medical Journal.—To the February number of this magazine Mr. Harold S. Barwell contributes an interesting article on Laryngeal Tuberculosis in which the prognosis and the treatment of this grave affection are discussed. At the present day the outlook for sufferers from this disease is perhaps less hopeless than was the case some years ago. A certain small proportion of cases appear to recover entirely if they are taken in time and treated hygienically. Only too often, however, palliative measures are all that are possible and of anæsthetic drugs suitable for laryngeal use Mr. Barwell prefers heroin hydrochloride. Surgical methods may be followed by good results in suitable cases. The author speaks of epiglottic cases as being of bad prognosis but it must be borne in mind that it is possible to remove this appendage with good effect. In an article on Anæsthetic Mixtures and Sequences in General Anæsthesia Mr. G. W. Bampfylde Daniell points out the great choice of such sequences which are at the disposal of the anæsthetist. Some interesting figures are given showing the gradual replacement of chloroform by "gas and ether" in the Edinburgh Dental Hospital since 1897. A review, in the form of an editorial note, of Dr. Sabouraud's recent book on "Pityriasis and Alopecia" gives a useful summary of the growth of knowledge with regard to these conditions of the skin.—The March number opens with an important article by Mr. A. Logan Turner upon the Operative Treatment of Chronic Suppuration in the Frontal Sinus. The comparative merits of preserving and of obliterating the sinus are discussed and allusion is made to a new method of procedure devised by Killian which is designed to admit of the radical treatment of the disease with a minimum of disfigurement. The author suggests that a collective investigation as to the results of treatment in disease of the sinus and of the antrum would be of considerable value. Dr. A. F. R. Conder reports two cases of Addison's Disease and compares with them that of an imbecile patient who exhibited very similar symptoms but post mortem the characteristic lesions of the suprarenal bodies were not found; he suggests that in this patient there may have been functional defect of the secretion. A paper by Mr. Archibald Stodart-Walker contains some disquieting reflections upon the decrease in the birth-rate and discusses its social causes. We cannot quite agree with the author in his attempt to trace the higher birth-rate among the lower classes to their possession of higher moral principles. We can hardly believe that it is the duty of every married couple to produce the greatest possible number of children without regard to their ability to give these children an education and a start in life such as will enable them to occupy their parents' position in the world. Prudence and self-respect are not necessarily vices, nor are their opposites virtues except in the eyes of the mere statistician.

Scottish Medical and Surgical Journal.—In the February number Dr. Stephenson continues his account of "Obstetric Views that Need Reviewing," the present (concluding) portion of his paper emphasising the importance of the property of retraction possessed by the uterine muscle in addition to its active muscular contraction. Retraction appears to be practically equivalent to elasticity. Dr. W. G. Aitchison Robertson deals with the important subject of the purity of our milk-supplies. He lays stress upon the necessity for insisting upon the maintenance of the strictest hygienic conditions in all dairies and cowsheds and advocates the sanctioning of the addition of small amounts of antiseptics to milk as a much smaller evil than allowing it to decompose. In a paper dealing with the Histology and Genealogy of Hæmophilia Dr. Alexander Goodall concludes that the disease is due to defective coagulation of the blood rather

than to any anatomical defect in the vessels.—We are glad to read the sensible article contributed by Dr. Francis D. Boyd to the March number. He lays stress in the treatment of gastric ulcer on the simple and common-sense method of physiological rest. Dr. Boyd advises total starvation for a few days, the patient receiving only water per rectum. Surgical measures are only called for in cases of chronic ulceration or of recurrent severe hæmatemesis. Mr. G. F. Barbour Simpson records a case of Fatal Irreducible Prolapse of the Uterus and Dr. R. A. Fleming narrates his experiences in the treatment of advanced dilatation of the heart by massage and exercises, with which he is very favourably impressed.

Birmingham Medical Review.—In the January number of this review Mr. C. G. Higginson recalls the pioneer work done by Bodington and MacCormac in advocating the treatment of pulmonary tuberculosis by open air and plentiful feeding, and Mr. H. May discusses the birth-, marriage-, and death-rates as compared with the changes which have taken place in the age distribution of the population and comes to the conclusion that the correction thus introduced into the statistics only emphasises the depressing tendency of the figures. In the February issue Professor Jordan Lloyd discusses the technique of partial and complete removal of the tongue and Mr. F. Victor Milward advocates the use of the sigmoidoscope in cases of rectal disease, pointing out that the use of Strauss's instrument is not very painful to the patient while it enables a full view to be obtained of a considerable length of the bowel.

Annals of Ophthalmology. Edited by JAMES MOORE BALL, M.D. St. Louis, Missouri, U.S.A.: Jones H. Parker. Vol. XIV. No. 1. January, 1905. Annual subscription for four quarterly parts, 18*s*.—This journal contains 15 original articles and a large number of abstracts from the ophthalmic literature of America and England, France, Germany, Spain, and Italy, which are done well on the principle of the division of labour, each subject being placed by the editor in the hands of one familiar with the language. Amongst the more interesting of the original articles are (1) that by Henry D. Bruns, M.D., of New Orleans, on the Removal of the Lens in High Myopia. Dr. Bruns holds that extraction of the lens is strongly to be advised in extreme myopes between the ages of 10 and 25 years. The prophylactic value of the operation is very great and the operation should consist in repeated discission. One eye only should be operated on at a time and a considerable interval should elapse before the second eye is attacked. The operation is contra-indicated for extreme myopes of, or beyond, middle age, especially in those in whose eyes extensive pathological changes have taken place. 2. An article by Dr. Bourgeois of Rheims on the Treatment of the Accidents of Infection after the Operation for Cataract. 3. A note by W. N. Souter, M.D., correcting a common misconception of Astigmic Refraction. 4. Dr. Liebreich discusses the Influence of the School upon the Eye and Spinal Column, in which he gives the result of his ripe experience on this subject. The number is adorned by a frontispiece consisting of the portrait by Faber after Ryche in mezzotint of the well-known charlatan-oculist, John Taylor, who lived in the eighteenth century and was oculist to George II., and there is also a plate copied from Hogarth's "Consultation of Physicians," in which that great painter has given free play to his humour in caricaturing the heads of the profession in his day.

National Service Journal.—We have received a copy of the February issue of this journal, the official organ of the league which bears this name. The emblematic cover represents Peace armed with shield and spear whom a figure representing War is apparently afraid to attack. A cartoon among the contents of the journal entitled "The Path of Duty is the Path of Safety" shows a youth being led by Duty through the forest of Ignorance. This picture, which is intended of course to convey an important moral lesson, might well be a little less suggestive of a scene from a pantomime. The articles on the National Significance of Universal Training, Naval Lessons of the War, and other subjects of an imperial interest will no doubt be read with the attention which they deserve. The price of the journal is 3*d*. and it can be obtained at Dacre House, Victoria-street, Westminster, S.W.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

STERILISOL.

(DR. A. FOELSING, FRANKFURT A M. AGENCY, DUFFIELD AND FUNK, 3, LOVE-LANE, EASTCHEAP, E.C.)

STERILISOL is an aqueous solution of trioxymethylene which is a polymer of formaldehyde. Hitherto it has not been found practicable to prepare an aqueous solution of trioxymethylene free from formaldehyde or, what is the same thing, oxymethylene. In fact, when trioxymethylene is dissolved in water under ordinary conditions some dissociation takes place, formaldehyde forming. If, however, the trioxymethylene is dissolved in water at from 40° to 45° C. in vacuo there is no separation of formaldehyde. Sterilisol represents an aqueous solution of trioxymethylene free from formaldehyde or oxymethylene. On evaporation in vacuo a residue of trioxymethylene is obtained. On the other hand, a solution of formaldehyde evaporated in vacuo yields no residue. The preparation is, like its prototype, an exceedingly powerful antiseptic, germicide, and deodorant; and it is doubtless, as it is claimed to be, an effective preservative, but it seems to us that its use for preserving food is open to the same objection as is formaldehyde. The solution is neutral in reaction and on boiling in the open air gives off formaldehyde. Sterilisol rapidly reduces alkaline solutions of silver salts.

GLUTEN BREAD.

(LACOSTE FRÈRES, VILLEMUR, FRANCE. AGENTS: C. THEELKE, 106B, CASEWICK-ROAD, WEST NORWOOD.)

The old form of gluten bread—that is, a puffed-out loaf—is very well represented in this preparation. According to our analysis the bread contains 75 per cent. of gluten, the balance, 25 per cent., being accounted for by starch and a trifling amount of mineral matter. This bread supplies, of course, a loaf which is suitable for the use of those who are forbidden a carbohydrate diet.

SPANISH BRANDY.

(JIMENEZ AND LAMOTHE, MALAGA AND MANZANARES. AGENCY: FREDK. BOEHM, 16, JEWRY-STREET, LONDON, E.C.)

We have on more than one occasion pointed out that excellent brandy is distilled in Spain and some security is obtained as to its genuineness by the fact that the excise regulations in that country in regard to foreign spirit (grain and potato spirit) practically prohibit the adulteration of brandy with spirit that is not derived from the grape. It is fortunate when excise regulations protect the consumer and when, as a matter of fact, it is unprofitable to the producer in the case of brandy to use anything else but grape spirit. We wish that such were the case in this country. This sample is an excellent brandy and we have no doubt that it is not only a genuine grape spirit but one that has been produced in the pot still. The following analysis in regard to secondary products sustains this view. The results, given in grammes per hectolitre of absolute alcohol present, were as follows: acidity reckoned as acetic

acid, 50·00; aldehyde, 26·00; furfural, 1·90; ethers reckoned as ethyl acetate, 90·00; and higher alcohols, 104·00: total secondary products, 271·90. These figures agree very closely with those obtained in the analysis of genuine Cognac brandy. The exception, however, occurs in regard to the amount of aldehyde which is in excess of that generally obtained with Cognac brandies, aldehydes, in fact, being a feature of the distillate of Spanish white wines. Further results of analysis were obtained as follows: alcohol, by weight 40·90 per cent., by volume 48·32 per cent., equal to proof spirit 84·68 per cent.; extractives, 1·54 per cent.; and mineral matter, 0·03 per cent. The flavour is acceptable, though somewhat "fuller" than delicate vintage brandies, and is distinctly sweet. The sweetness, however, is not due to sugar. This brandy, on the whole, as regards finesse, bouquet, &c., bears a distinct resemblance to the Cognac product.

(1) SOLUBLE INFANTS FOOD (THEINHARDT); AND (2) HYGIAMA (THEINHARDT).

(AGENTS: C. HOHMANN, 33, SEETHING-LANE, LONDON, E.C.)

Both these preparations have received our attention on a previous occasion but they have since been improved, it is stated, by increasing the proportion of proteid and fat and of carbohydrates soluble in water. On comparing our recent examination with that made 12 years ago we find that this statement is true. In the case of the infant's food in particular the fat has been advanced from 5 to nearly 8 per cent. while of the 70 per cent. of carbohydrates nearly 54 per cent. are soluble in water; and in "hygiama," while the fat remains the same, all but 10 per cent. of the carbohydrates, which amount altogether to 60 per cent., are soluble in water. Both preparations contain a high proportion of proteid, the infant's food just over 16 per cent. and "hygiama" nearly 22 per cent. The preparations belong to the class of malted farinaceous foods in which the constituents are rendered soluble to a large extent and digestible by diastasic action.

SYLVIA SOAP.

(THE SYLVIA SOAP CO., 62, COLEMAN-STREET, LONDON, E.C.)

Sylvia soap is described as a pure neutral soap "with which are incorporated certain animal principles which are absorbed by the skin and exert a solvent action on the underlying adipose tissue." We agree that the soap is a pure neutral soap but we must confess to great misgivings as to its power of reducing corpulency and we can find no record of practical evidence on this point. As to what the certain animal principles are we may make a shrewd guess after finding that the soap gives a very marked reaction characteristic of biliary acids. Thus when a solution of glucose in strong sulphuric acid is poured into a pool of a solution of the soap a brilliant play of crimson colours is produced. The soap contains a mineral substance of the nature of French chalk. These results coincide with those which we obtained with a soap known as "amiral" soap, noticed in THE LANCET of July 30th, 1898, p. 266.

New Inventions.

THE "LOCKET" POISON BOTTLE.

WE have received from the Locket Patents Company a sample of a new poison bottle which presents some distinctive features. It somewhat resembles the round-ended inverted bottles commonly used in museums and shops for the display of specimens. These bottles usually have a glass stopper with a large flattened head on which they stand but the poison bottle is closed with a cork inserted in a neck of the usual description. The shoulder of the bottle close to the neck has an external screw-thread in the glass and on it there screws a flat-ended cap which supports the bottle in the vertical position with the rounded extremity uppermost. It is, therefore, impossible even for a blind person to mistake this poison bottle for one of the ordinary kind. The bottle is of transparent blue glass; including the cap its dimensions are five and three-quarter inches high and one and a half inches in diameter. The address of the Locket Patents Company is 6, Mornington place, Hampstead-road, London, N.W.

Looking Back.

FROM

THE LANCET, *SATURDAY*, April 21, 1827.

Insanity was very common during the commonwealth; cant and impiety and murder, were the orders of the day. Cromwell, at least, was mad: his chaplain, Godwin, told him, that the elect would never be damned; then "I am sure," says he, "that I am safe; for I was once in a state of grace." On his death bed, "I tell you," cried he to his physicians, who had warned him of his end, "that I shall not die of this distemper; I am well assured of my recovery; favourable answers have been returned from heaven, not only to *my own* supplications, but likewise to those of the godly, who have a more close correspondence with God than I." Other parts of his life may be quoted in proof of the delusion; nor was he solitary in his madness. When Colonel White went with an armed band to dissolve the parliament of the times, he found one Moyer in the chair, who being asked what they did there, replied that they were seeking the Lord; "Then you may go elsewhere," cried White, who was clear of the delusion, "for, to my certain knowledge, the Lord has not been here these many years." It is clear, therefore, that a species of theo-mania was very common at that period.* Plagues and influenzas were also common. Is it too much to suppose that the atmospherical causes which produced the one, had some share in producing the other? We well know, that some conditions of the body change with the weather; why not the brain? On the day Cromwell died (Sept. 3. 1658,) there was a violent storm, which the influence of the sun and moon had some share in raising; and it is certain that madmen are worse, and that other effects are produced on animals at the quadratures of the moon. The idea of this influence will, we dare say, be laughed at; but beyond all doubt, considerable changes are produced in animal bodies, about the period of the autumnal and vernal equinoxes. The weather has much concern with diseases, and the sun and moon most assuredly have much effect on the weather; they must, therefore, be allowed to have a particular influence on animals, indirectly, at the least.[1]

* Notwithstanding the delusion so common in that day, these people were shrewd and politic, and conducted the affairs of the nation with an energy unknown before. It is evident, therefore, that the manifestations of one or more faculties of the mind may be deranged or destroyed, without affecting the others; and hence it is perfectly unreasonable that a man should be deprived of his liberty and his rights, because he may happen to hold opinions upon a subject or two discrepant with those of his neighbours, unless his false perception of things be likely to lead to violence or crime.

1 Excerpt from lengthy reviews of three books on insanity by the following authors respectively, viz., J. G. Spurzheim, M.D., Paul Slade Knight, M.D., and Alexander Morison, M.D.

FOREIGN UNIVERSITY INTELLIGENCE.—*Copenhagen:* The gold medal offered for an essay on Colour Blindness has been awarded to Dr. Henning Chr. Trappaud Rönne.—*Giessen:* Dr. Johann Georg Mönckeberg has been recognised as *privat-docent* of General Pathology and Pathological Anatomy. Dr. Best, *privat-docent* of Ophthalmology, and Dr. Boetticher, *privat-docent* of Surgery, have been promoted to Extraordinary Professorships.—*Göttingen:* Arrangements have been made with Dr. Ehrlich, Director of the Institute of Experimental Therapeutics in Frankfort, to deliver a course of lectures in this university, in which he is an honorary professor.—*Leipsic:* Dr. Garten, *privat-docent* of Physiology, and Dr. K. Hirsch, *privat-docent* of Medicine, have been promoted to Extraordinary Professorships.—*Tübingen:* Dr. Dietrich, Assistant in the Pathological Institute under Professor Baumgarten, has been promoted to an Extraordinary Professorship.

THE LANCET.

LONDON: SATURDAY, APRIL 22, 1905.

Industrial Alcohol.

IT has long been to the prejudice of a certain large section of the trade of this country that alcohol used exclusively for the purposes of manufacture has had to bear revenue expenses which make it far more costly to English manufacturers than it is to manufacturers abroad. Indeed, the decadence of certain home industries is attributed in some quarters to the facilities generally afforded to foreign manufacturers for obtaining cheap alcohol. While undoubtedly there exist obstacles to the progress of certain industries in this country on account of the high price of alcohol compared with that which obtains abroad, it is a mistake to suppose that Germany's scientific industries have advanced entirely for that reason. The great coal tar dye industry, for example, was founded in this country but its rapid development in Germany practically ruined the manufacture here, not because alcohol was dear but because our manufacturers were so slow to realise the value of the application of scientific principles to the processes of manufacture. There is far too much of "the rule of thumb" principle still existing amongst our manufacturers who have earned for themselves the reproachful title of "thumbers." However, it is easy enough to mention a goodly list of industries in the country which are undoubtedly heavily handicapped against foreign traders by the relatively high price of alcohol and it is, therefore, reassuring to learn that the Departmental Committee on Industrial Alcohol, in its report just issued, believes that the recommendations which it has made will (if adopted) place the manufacturers of this country, in respect of the use of alcohol in the industries, on a footing of equality (in some respects of advantage) with their competitors abroad.

Practically, the committee suggests that the only adequate course to take in regard to reducing the price of alcohol is to neutralise for industrial spirit the enhanced cost of production due to excise control. This enhanced cost is already neutralised in the case of exports by granting an allowance on such spirit at such rate as may from time to time be taken as the equivalent of the increase in cost of production due to revenue restrictions. At the present time the rate is taken at 3*d*. per proof gallon for plain spirit and the allowance would accordingly be at this rate and should, the committee thinks, be paid equally on all industrial spirit, whether it be of British or of foreign origin. It is further recommended that ordinary methylated spirit should contain only 5 per cent. of wood naphtha instead of 10 per cent. This is calculated to cheapen methylated spirit while it will diminish any prejudicial effect that the chemical properties of wood naphtha may have in certain manufactures, and at the same time it will continue "to ear-mark" the spirit sufficiently to allow detection by analysis should the methylated spirit be used for any improper purpose. If these recommendations be adopted it is calculated that the average price of industrial spirit in the United Kingdom will be even lower than the average price in Germany. Further, it is calculated that these concessions will cause to the revenue an annual loss of over £40,000. The committee recognises the important part that alcohol plays in the preparation of pharmaceutical products and fine chemicals. It points out—and we believe it is justified in the statement—that cheap alcohol is perfectly compatible with the requisite quality and character of the compounds produced. A difficulty arises, however, in this case, because there are large numbers of pharmaceutical preparations in which the alcohol remains as free spirit and which must continue to be made from duty-paid spirit. Besides, pharmaceutical preparations are so numerous and so various in character that there are difficulties in making a single process of "denaturing" applicable to them all. These difficulties have been overcome in Germany and there is no reason why they should not be overcome here. The committee recommends that in the manufacture of fine chemicals and pharmaceutical products spirit specially "denatured" should be allowed only where the manufacture is kept entirely separate from the manufacture of tinctures and other preparations in which spirit remains as spirit in the finished products. Finally, it is suggested that the regulations governing the sale by retail of mineralised methylated spirit should be made less stringent and more elastic than hitherto. The committee does not regard the question of the use of spirit for motor-cars as ripe for consideration from the point of view of its inquiry, whilst the use of cheap alcohol for illuminating purposes seems to have escaped its attention altogether.

The Chancellor of the Exchequer has expressed his intention of adopting the recommendations and it is interesting to note that one effect of their adoption may be that the manufacture of industrial alcohol will be encouraged in this country and that after all the growing of potatoes may pay for the sake of the spirit which can be made from them. It is probable also that these concessions will favourably affect the prices of many drugs and that the old preference for English-made goods will not be checked by considerations of extra expense.

A Convalescent Homes Association.

THERE can be no difference of opinion as to the value of convalescent homes. When a patient is discharged from a hospital he is often not yet fit to resume his occupation. He may have recovered from the illness from which he has suffered or the operation which he has undergone but he has not the strength to do his ordinary work. For such a man a short stay at a convalescent home, in the pure air of the country or of the seaside, may suffice to render him more capable of working than he was even before he sought treatment at the hospital. In many cases complete recovery may ultimately ensue even if a sojourn at a convalescent home is impossible, but often cure will be indefinitely prolonged in the unhealthy conditions of the patient's own dwelling. In most cases recovery is not only much more rapid but also much more complete when suitable

change of air can be obtained. There is also another aspect of the matter which does not always receive due recognition. If it were easy to transfer a patient to a convalescent home the hospital authorities would often be able to send him away at an earlier period than would otherwise be possible and thus the hospital bed could be utilised for another case and the accommodation of the charity would be materially increased. It is now many years since the need for convalescent homes was first felt and they have sprung up in every direction. Several hospitals have with more or less success started homes for convalescents and no small number of beds is now available. No attempt, however, had been made to coördinate these institutions so that the benefits which might be obtained from them could be utilised to the full until the movement which has been started recently to form a Convalescent Homes Association. This movement was initiated by Dr. S. H. HABERSHON and Mr. M. O. FITZGERALD and the first meeting of the council was held last Thursday week, when many attended representing the hospitals of London and the chief convalescent homes and a small executive committee was appointed to obtain statistics as to the amount of accommodation in convalescent homes, the requirements of the hospitals in this direction, and the comparative cost of what was wanted.

The aims of the association are many. In the first place, it is desired to bring together representatives of the hospitals and the homes so that they may be able to work together more efficiently. Nearly every hospital could utilise more convalescent beds than it has at present at its disposal and many convalescent homes are not used to the fullest possible extent. There are many points on which some change in management is needed. In most convalescent institutions the diet, though good in quality and sufficient in amount, is not exactly that which is best suited for many patients just recovering from severe diseases, especially of the digestive organs. When these patients are fed on such food they cannot derive as much benefit from their stay at a home as they might otherwise. Thus there is clearly a need for a little less rigid adherence to a definite uniform diet, a greater power of adaptation to individual needs. Hard and fast rules frequently terminate the patient's sojourn in a convalescent home; but the duration of a patient's treatment as a convalescent ought clearly to be somewhat elastic. Quite as important also is the necessity which exists for convalescent homes for patients with unhealed wounds. At the present time there is hardly a convalescent home which is willing to admit a patient with an open wound. No arrangements exist for dressing wounds and therefore cases needing dressing cannot be admitted. Every medical man will admit that this restriction must exclude many patients who would derive inestimable benefits from convalescent homes. To keep such patients in hospital in order to allow a small surface wound to heal is harmful both to the patient and to the hospital, delaying the recovery of the one and lessening the utility of the other. There should be convalescent homes where patients can be received who need surgical dressing and where the surgeon can feel sure that his patients will receive due care, attention, and nursing. It may be urged that cases requiring such attention are not convalescent cases but every medical man will agree that there are many such patients to whom the benefits of a convalescent home would be incalculable. Further, in nearly all convalescent institutions the patients are required to make their own beds and to perform other slight duties and any patient incapable of this is liable to be returned to London. It is obvious that such a rule as this must exclude many who would be eminently suitable for convalescent treatment if we were to judge only by their physical condition.

If a convalescent home were to admit many patients requiring surgical dressing or needing careful dieting it would be necessary, or at least very desirable, that a resident medical officer should be attached to such an institution. As to how this is to be made practicable there may be room for discussion, but many of the London hospitals could surely supply house surgeons or house physicians in a temporary capacity, for a fortnight spent as a resident medical officer at a convalescent home would be a valuable corrective of the physical depression which so often follows the tenure of a resident post in a hospital. In indicating some of the modifications which experience has shown are needed in the management of convalescent homes we would point out that no grave upheaval of existing conditions is called for. There is no need for any amalgamation; each institution may still remain autonomous, but the consultation and coöperation of the authorities of convalescent homes and hospitals cannot but be of benefit to all. Whether the scheme now inaugurated will accomplish all that is hoped no one can say yet but the attempt is well timed and reflects credit on those who have initiated it. We should like, however, to see a fuller representation of hospitals at the preliminary counsels.

The Housing Problem at Liverpool.

WE have before us a paper[1] read recently at the Royal Sanitary Institute by the deputy surveyor to the corporation of Liverpool, which gives an interesting account of the methods adopted in that city for rehousing the persons turned out of buildings demolished as insanitary and of the results of improved surroundings upon the tenants dealt with. The medical interest lies in the fact that the Liverpool corporation has adopted a policy of building dwellings for the benefit of those about to be dispossessed from tenements unfit for human habitation and of admitting these to the new houses to the exclusion of all not so qualified. Consequently any record of improved physical and moral conditions does not merely refer to a geographical area but to the persons who have inhabited it in two classes of circumstances. This is important as it is often desirable to compare the health of the residents in an area before and after rebuilding, and the objection is often heard that new and improved buildings are let to tenants of a class differing from that of those who inhabited the old ones. The buildings counted as structurally insanitary at Liverpool are those standing back to back without any through ventilation or yard space, often in courts with

[1] Recent Methods of Re-housing Tenants Dispossessed from Insanitary Property, by Fletcher T. Turton, F.S.I., deputy surveyor, corporation of Liverpool.

only a tunnel-like entrance and with a consequent absence of circulation of air. The corporation has power to deal with such buildings under a local Act, the Liverpool Sanitary Amendment Act, 1864, and in doing so it has to face the fact that in its worst districts near the docks the population is not only very poor but is engaged in casual labour, which necessitates application for work four times in 24 hours, so that rehousing in distant suburbs is out of the question.

The initiation of the present policy appears to have been due to the discovery that the number of tenants displaced by the demolition of their houses who afterwards occupied the new ones provided by private or by municipal enterprise was infinitesimal owing to the higher rents of the improved dwellings, the natural inference being that the displaced population found its way into old houses which were insanitary and were awaiting their turn for demolition. Consequently demolition and rebuilding have been so arranged that for some years past no tenant has been dispossessed by the operations of the corporation without having been given the opportunity of occupying one of the new tenements provided. The dwellings usually erected at Liverpool by the corporation are three storeys in height, the living rooms containing 150 superficial feet and the bedrooms from 125 to 80 feet, with an average height of nine feet, and the materials used are serviceable and conducive to sanitary efficiency. The rents range from 5*s*. 3*d*. to 4*s*. 6*d*. per week for four-roomed tenements, with corresponding grades for those containing three and two rooms, the cheapest two-roomed dwellings costing 2*s*. 9*d*. per week to the tenant. Financially, a rate of about 2*d*. in the £ is at present sufficient to meet the annual cost to the municipality entailed by the building operations which have taken place, and as a portion of this is set aside for the repayment of the loans raised the time is looked forward to in each instance when the new houses will be a valuable asset producing a regular and not inconsiderable rental. Looked at from a sanitary and moral point of view, these new houses, containing, be it remembered, the same inhabitants as the old ones, appear to be productive of considerable improvement in the crowded quarters in which they are situated. The death-rate prevalent in the unhealthy areas which have been dealt with reached on an average, according to Mr. TURTON'S figures, 60 per 1000 per annum. The death-rate in the new dwellings is at the present time about 25 per 1000 per annum, and it must not be forgotten that where this lower rate is found the families have lived hitherto in unhealthy surroundings, so that they must be considered still to feel the influence of the unfavourable conditions from which they have been saved. These figures by themselves are an eloquent testimony to the importance of the housing question and to the practical and ascertainable nature of the results which can be arrived at by judicious measures.

No less important are the facts relating to the moral and the social aspect of the case. Mr. TURTON records from his own observation the outward signs of personal improvement on the part of the families removed to the new buildings, the increasing cleanliness of the houses, the polishing of door handles, the gradual provision of window curtains and even of plants, and the additions made to the scanty store of furniture. Statistically he supports his case with figures furnished by the chief constable, from which the following may be cited. In 1894 in a typical district before demolition of the insanitary buildings began there was a total population of 1393 persons and the number of those charged with drunkenness, with assaults, and with other offences who gave addresses in the streets included was 202, while 64 arrests took place within the area. In 1904, ten years later, new houses had taken the place of the old ones, accommodating 1246 persons, and these had been occupied for a year. During the same length of time the corresponding figures were 84 and 12 respectively. If improved conditions such as these can be brought about and maintained by placing the poorest of our citizens in healthier homes and thereby increasing their self-respect and their desire to lead decent lives, it would seem that a substantial proportion of the money expended must necessarily be repaid by the economy effected in other directions. Liverpool is to be congratulated upon the success which has attended a business-like method of dealing with a difficult question and its citizens should be encouraged to persevere in the completion of the work which they have begun. They commenced it in 1864, when the Act of Parliament referred to was passed and when it was estimated that there were 22,000 structurally insanitary houses. In 1902 it was found that nearly 10,000 houses remained to be dealt with, and though this figure shows that much is yet to be done Londoners will hardly be able to help envying a city in which the task of housing the working classes may be said to be of reasonable dimensions. It must be noticed, however, that even the system adopted at Liverpool does not provide for all those displaced. According to Mr. TURTON there is always a residuum who cannot face the change. These have lived, and will continue to live, from hand to mouth, paying no rent where it is possible to avoid it, and shunning habitations such as those under municipal control, where the payment of rent and a certain amount of decency of conduct are indispensable conditions of tenancy. Although some of these will remain to spread disease and vice until the last slum has been levelled and rebuilt, their numbers will grow less as the habitations which shelter them grow fewer and as the conditions which contribute to the increase of their numbers are ameliorated.

Annotations.

"Ne quid nimis."

GALL-STONES AND CANCER.

FOR many years it has been believed that the association of gall-stones with malignant disease of the gall-bladder or biliary passages is very common, and when carefully collected statistics bearing on the subject have been prepared no doubt can remain that a large proportion of persons who suffer from gall-stones die from carcinoma of the biliary tract and that in nearly all cases of malignant disease of this region gall-stones are present or a history of their previous existence can be obtained. Whatever theory we may hold as to the etiology of malignant disease this connexion is clear. Dr. G. R. Slade of the London Hospital has been carefully investigating the cases in that institution in which gall-stones have been found at the post-mortem examination or in which malignant disease of the gall-bladder has been present. The results are very striking. In all 33 cases of gall-stones were discovered amongst 2180 consecutive complete necropsies and in just one-half of these (17 out of 33) no

symptoms indicating gall-stones had been present and in all but one of these 17 cases there was no naked-eye evidence of malignant disease, while in the remaining case microscopical examination showed carcinoma. Of the 16 cases where symptoms had been present nine gave definite evidence of the presence of malignant disease, but in the other seven cases, though macroscopically "chronic inflammatory thickening" was present, no histological examination was made. Thus we see from these figures that in 30 per cent. of all cases of gall-stones malignant disease was present as it was in 56 per cent. of all cases where gall-stones had caused symptoms during life. It is very probable that these figures understate the frequency of the association of gall-stones and cancer, for several of the cases where the cystic wall was thickened were not investigated microscopically and may very possibly have been malignant. If it be admitted, then, as admitted it must be, that these two conditions are causally connected, it remains to be decided which of the two is the cause and which the effect; or it is possible that both may be alike effects of a common cause. The supposition need not detain us, though it has been held that as some are inclined to ascribe gall-stones to an excessive diet of meat, so others have been equally certain that malignant disease has a similar origin. Inasmuch as in almost all the cases of carcinoma gall-stones were present, while in as many cases gall-stones were present in the gall-bladder but there was no evidence of malignant disease, we are bound to acknowledge that it is almost certain that the gall-stones give rise to the cancer and not the cancer to the gall-stones. In elucidation of the question, How can gall-stones cause malignant disease? we have the fact shown by statistics that carcinoma is especially likely to accompany gall-stones if they are rough and irregular on the surface. Therefore, it is probable that, as in other parts of the body, local irritation tends to excite, or to assist in exciting, malignant disease. What additional cause is necessary we do not know. Recent bacteriological research has shown that many morbid hepatic conditions are microbic in origin which were formerly looked upon as of other etiology. This fact of itself might suggest that possibly in malignant disease of the gall-bladder also we have a micro-organism as a causative factor in addition to the local inflammation. Be this how it may, we can feel assured that we are not in error in ascribing carcinoma of the gall-bladder to the chronic irritation and injury caused by gall-stones with some additional etiological element at present unknown to us. The practical bearing of the close association of gall-stones and malignant disease of the gall-bladder is obvious. If it be true that over 50 per cent. of all cases of gall-stone end in malignant disease, and this must certainly be admitted, it should follow as a necessary corollary that total removal of the gall-bladder in cases of cholelithiasis would be preferable to mere cholecystotomy and evacuation of the stones, provided always that the increase of the danger of the operation was not enough to counter balance the improved prognosis should the operation succeed. In the hands of a skilled operator the increase in the risk is but small and when cholecystectomy is performed there is the additional advantage that the chance of a biliary fistula is obviated. The physiological value of the gall-bladder is slight, so that its loss is not felt so far as we are aware. Dr. Slade's paper (which is published at p. 1059 of our present issue) is a good example of the utility of careful statistical inquiries and we hope that he will continue his investigations into this important matter.

INFANTILE MORTALITY.

AT a recent meeting of the Prestwich board of guardians the third report of Miss Pollitt, the inspector under the Infant Life Protection Act, was read. She said that there were 29 infants on her register; 20 were illegitimate, 14 of them being entirely supported by their mothers who were domestic servants. She stated that instead of decreasing the rate of infantile mortality was increasing, notwithstanding all the improvements in the conditions of life. She could only put it down to the ignorance and the neglect of the mothers. We may well wonder whether, with all the costly and elaborate arrangements for teaching accomplishments in our elementary schools, it will ever occur to doctrinaire educationists that there are practical matters affecting the life and the well-being of poor people which will not be solved satisfactorily until more attention is given to subjects bearing on health and everyday duties.

OIL IN TOBACCO.

WE have received from the Scottish Anti-tobacco Society a communication in which it is suggested by Mr. Rutherford Hill that the irritating effects of tobacco smoke may be largely due to the combustion of oil. Tobacco, of course, contains a natural oil but for the purpose of manufacture the practice of adding oil is on the increase, as was shown in the last report of the principal chemist of the Government laboratory. The oil used is stated to be best Florence oil, which on imperfect combustion would yield the intensely acrid and irritating vapour, acrolein. While we quite agree that the formation of acrolein in this way would be a contributory factor to the irritating property of tobacco smoke, yet it must be borne in mind that the products of the destructive distillation of the tobacco leaf, even free from added oil, contain a great number of substances of a similarly acrid character. Such, for instance, are pyridine, furfural, butyric and valeric acid, ammonia compounds, and so forth. The addition of glycerine which is also practised would again give rise to the formation of acrolein, while glucose would give irritating products on partial combustion. The proportion of added oil, glycerine, or glucose is, however, in most cases small and probably insignificant having regard to the proportion of tobacco smoked. We object, however, to the principle in general of adding any foreign substance whatever to tobacco and the less tampering there is with the leaf the better and the less injurious is it likely to be. But it seems to us that we do not require to resort to an enumeration of the various constituents, good or bad, of tobacco to prove that smoking by juveniles is a pernicious practice. Any movement to suppress the habit amongst children has our complete approval.

THE DANGERS OF THE STREETS.

A CORRESPONDENT in addressing us upon the subject of the dangers to pedestrians in the London streets includes in his indictment the hat-pins of the women—"unclean imitations," he terms them, "of the ladies' dagger of the Middle Ages,"—and the bad language of the men. There is much force in his contention that both hat-pins in women's heads and oaths in men's mouths do form public dangers. Among a certain class hat-pins are constantly used as weapons of offence and when they are not employed in this manner by the design of the wearer they often threaten the eyes of others in a really dangerous way. It ought to be possible for an ingenious milliner to devise some less dangerous method of fixing on the hat. Nor is the modern headgear of women without its pathological significance. On a windy day the leverage on the roots of the hair when the large and flapping headgear is endeavouring to sail away is one of the causes of the headache of which most women complain after a buffeting by the elements. *Il faut souffrir pour être belle* is an old saying, but many women do not know that they have only their hats to thank for their headaches, while the aphorism does not suggest that the eyesight of other people should

suffer for beauty's sake. The evil caused by thoughtless men who do not sufficiently restrain themselves in their use of unseemly language cannot be exactly estimated. It can only be guessed at, but the fact remains that it is quite impossible for women to pass along many of our streets without their ears being assailed by expressions which must insensibly affect them. In puerperal and even in other forms of insanity nothing astonishes the friends more than the indecent expressions and the oaths used by the patient. They cannot understand where and how these phrases have been acquired. There are, unfortunately, too many opportunities for the incorporation into the mental life of objectionable elements which, at first latent, declare themselves in all their objective repulsiveness when the patient becomes a reflex machine, as it were a phonograph reproducing the impressions of these street vulgarisms.

THE DISCOVERY OF THE DISCOVERED.

M. O. van Schoor in an essay in the *Journal de Pharmacie* for March on the evolution of medicine accentuates the truth of the adage, *Nil novi sub sole*. Some of his illustrations are worth giving. Hippocrates was aware of the patches in the intestines the discovery of which is ascribed to Peyer (1680), and Caspar Aselli (1600) is wrongly said to have discovered the chyliferous vessels to which Herophilus and Erasistratus drew attention (250 B.C.). The pancreatic duct, the discovery of which is attributed to Hoffman and Wirsung (1630), is mentioned by Eudemus, a contemporary of Galen. Again, Alcæon, who lived in the fourth century before Christ, refers to the auditory duct which afterwards bore the name of Eustachian tube. The same thing has occurred in therapeutics. Many remedies that were employed in remote antiquity fell into disuse and were again introduced into practice at a later date. Thus, arsenic was used as a febrifuge by Lentilius and Hippocrates recommended it for cancerous affections. The most recent researches have resulted in the employment of arsenic for the same purpose in the form of organic compounds—e.g., the cacodylates and arrhenal. Pythagoras recognised the diuretic value of squill but its use lapsed for a long period. Opium has been found in the dwellings of the inhabitants of the lake villages of Switzerland as well as in ancient Egyptian tombs, but afterwards it appears to have been forgotten during several centuries. Hippocrates employed this drug freely as a sedative and afterwards it had a vogue in the Middle Ages. Even Paracelsus did not scruple to use this vegetable drug in the case of one Kornel von Lichtenfels who had vainly tried other practitioners without being cured. Paracelsus speedily effected a cure but it is of interest to note that the patient refused to pay the fee which had been agreed upon before the treatment was begun. The case was tried before the court at Basle, with the result that the fee was reduced to a few florins. This so angered Paracelsus that he reproached the judge and so brought about his banishment and the loss of the chair which he occupied in the university. A remedy known to Galen was the male fern which after the lapse of centuries was brought to the notice of Louis XIV. by a quack. In surgery it is no less true that some of the methods employed by modern advanced surgeons were known to the ancients. Thus Hippocrates mentioned intubation of the larynx and Cœlius Aurelianus gave instances of the successful operation of tracheotomy. Praxagoras ventured to perform a laparotomy and employed intestinal sutures. Operations for hernia were performed 250 B.C. and Serapion removed diseased kidneys. Puncture of the thorax in empyema was rediscovered in 1650, after having been forgotten apparently for centuries. That the practice of asepsis is not entirely modern is shown by the fact that contemporaries of Hippocrates were in the habit of dipping their instruments in boiling water. In the thirteenth century it was customary before operating to administer to patients by means of sponges placed in the nose the juices of sedative plants—e.g., stramonium, belladonna, and mandragora, consciousness being regained by the application of vinegar compresses. Among other methods of treatment now in vogue hydrotherapy, gymnastics, and the open-air treatment were practised by the Romans and the Greeks. Hypnotism was thought highly of by the priestly physicians in the temples of Isis in ancient Egypt. Perhaps one of the oldest forms of medication is organotherapy, which after a period of decline has again come into vogue. In medicine and surgery, as in all the arts and sciences, methods become general, then lapse into disuse, to be revived possibly at a later period and then to achieve a popularity which attaches to a supposed new thing.

THE QUEEN'S JUBILEE HOSPITAL.

THE simultaneous resignation of the majority of the members of the medical staff of a hospital always should afford material for inquiry, even though no difficulty should have been experienced in filling the vacancies thus created. It will be remembered that the Queen's Jubilee Hospital has of late been attracting attention and to those who are acquainted with its early history the marvel has been that the trouble has not made an earlier appearance. The initiation and the foundation were questioned from the first and many protests were raised against calling a new hospital into existence with a name which, though attractive, was scarcely warranted. The local need of the hospital was not apparent, since within reasonable distance a larger and better equipped hospital had been established for some years. Through all the appeals it was evident that the conception of the need of the hospital and of the suitability of its name originated with a general practitioner who was ready to contribute largely and to identify himself with the undertaking. In the natural course of events a medical staff became associated with him and a board of management was formed. The work has not, however, progressed smoothly and on Feb. 8th the late medical staff, with the exception of Mr. R. F. Benham and the dental surgeon, resigned, the new staff taking over the work on or about March 8th. On March 13th the chairman, Mr. G. R. Everitt, wrote to the authorities of King Edward's Hospital Fund, asking them to make inquiries "in connection with the recent trouble at this hospital and if possible to make arrangements for such investigation." Eventually Mr. Frederick M. Fry and Mr. J. Danvers Power were appointed to make an inquiry. Two visitors of the hospital—namely, Sir Thomas Smith and Mr. H. C. Smith—were also invited to serve on the inquiry but the former was unable to attend and the latter was out of England. Mr. Fry and Mr. Power held three sittings at the hospital, on April 6th, 7th, and 8th, and paid a visit of inspection on April 10th. The board of management was represented by Mr. Tom Green and Mr. Bavin and the late medical staff by Mr. R. P. Brooks, from whom, says the committee of inquiry, "we received every assistance." The report of the committee contains 23 clauses of which the last four are recommendations. The salient points of the report are as follows. As regards Mr. Benham it may be assumed that he continues to act on the staff for reasons personal to himself. "Unless these are connected with his recognised professional eminence, as distinct from academic qualifications, the only conclusion we can draw is that he occupies his position as a member of the medical staff in virtue of his being the founder of the hospital. Should this be the case his position is a false one." As regards the new staff the report says: "Individually and collectively the new staff may have acted quite correctly for

anything we can say to the contrary." The committee considers that the hospital has not been well conducted and that the old staff had not a free hand; that the board of management was not aware of many facts of which it should have had knowledge; and that the actual occasion of the resignation of the late medical staff "was not the best which might have been chosen." Further, "The charge against the ophthalmic surgeon we dismiss as unfounded. No corroborative evidence in support of the charges against the resident medical officer was brought before us." Clause 19 of the report states that in the opinion of the committee of inquiry a building on a large scale for in-patients is not required on the site of the hospital but that "as a casualty and out-patient department with a few beds attached, a properly constructed building might do useful work in the neighbourhood." The second recommendation runs as follows: "The advice we offer is that a period of, if possible, 12 months be placed between the present and the future permanent management of the hospital and that all the members of the present staff and board should resign, the treasurer and trustees continuing to perform their present duties." Another recommendation is that the governors should suspend the constitution, rules, and by-laws of the hospital for 12 months, and should elect, on the nomination of the executive committee of the King's Fund, a few gentlemen as a board of management to carry on the affairs of the hospital for that period under such temporary rules as they may find it desirable to frame. This board of management should be empowered to appoint, "with the approval of the Presidents of the Royal Colleges of Physicians and Surgeons if they should consent to give the matter their consideration, a medical staff to serve for one year." We can only hope that the governors and other authorities of the Queen's Jubilee Hospital will agree to abide by the recommendations of the committee appointed by King Edward's Hospital Fund.

RADIO-ACTIVITY AS A FACTOR IN HYDRO-THERAPY.

SOME years ago, at about the time when argon and its equally inert colleagues krypton, neon, and xenon were discovered, we ventured to suggest that these elements owing to their occurrence in natural thermal waters might account, in part at any rate, for the value of these waters in the treatment of disease since it could hardly be supposed that a *few* grains per gallon of chalk, sulphate of lime, common salt, and so on could have any marked beneficial influence. The case is different with waters which contain a *notable* amount of salts, such as carbonate of soda or the aperient salts of soda and magnesia. The waters of Bath, Buxton, Contrexéville, and other places exhibit a comparatively feeble degree of mineralisation and yet there can be no doubt of their therapeutic value. Nor can it be supposed that a water which is naturally hot can have greater therapeutic effects than would be gained by the similar use of artificially heated water. So far, then, the findings of the physicist and the chemist do not afford a satisfactory hypothesis in regard to the therapeutic value of such waters. The question now arises whether the fact that these waters are radio-active will supply any explanation. Most, if not all, of the thermal springs in Europe which have been examined have been found to contain in slightly varying quantities argon and helium and in the majority of cases these waters have been found to be distinctly radio-active. Indeed, the presence of argon and helium would appear to be inseparable from radio-active properties. We seem here to be getting some light at length on what has long been an enigma, that of two waters showing the same chemical composition as regards their saline constituents the one of natural origin is distinctly superior therapeutically speaking to the one artificially compounded. The fact is that a natural water welling up from the earth is at the moment of its discharge from its source radio-active, while ordinary drinking water, rain water, well water, river water, and the like, do not generally exhibit this property to any extent. Further, since the property of radio-activity is rapidly evanescent, the emanation quickly vanishing, it follows that if the benefit derived from undergoing a course of waters is due to the radio-activity of those waters the treatment should obviously take place near the source of the water—in other words, the waters should be used when they are showing a maximum degree of radio-activity. Some interesting remarks on this subject have reached us in the form of a pamphlet written by Dr. A. Piatot, consulting physician at Bourbon-Lancy (Saône-et-Loire) where there are thermal springs containing marked quantities of argon and helium and showing radio-active power. A geological exploration of the district has brought to light many radio-active minerals and the degree of radio-activity of the various hot springs in the locality would seem to vary apparently in direct accordance with the distance of the spring from its geological source. Dr. Piatot finds that the rule seems established in the case of the hot springs at Bourbon-Lancy that the least mineralised waters exhibit the most intense radio-activity and *vice versâ*. It appears to us that this interesting development of a theory of undoubted importance in hydro-therapy suggests a very simple line of research and the idea of radio-activity being the most important factor in "the course of waters" could be readily put to the proof. Radium baths could easily be prepared exhibiting a more powerful degree of radio-activity than that of the richest natural waters and their effects could be studied. The results would be certain to be most interesting.

ORGANS OF DIGESTION IN PITCHER PLANTS.

AN important and interesting paper was read at the general meeting of the Linnæan Society held on April 6th by Mr. W. Botting Hemsley, F.R.S., on the Pitchers of Nepenthes and at the same time many slides, prepared by Mr. L. Farmar, were exhibited illustrating the various types of pitchers and their curious glandular systems. The plants themselves are tropical and are widely distributed in the Asiatic Archipelago, from New Caledonia on the east to Sumatra and even to the Seychelles and Madagascar on the west. Borneo alone, which seems to be the head-quarters of the group, contains 20 species and Sumatra 10. They present some affinities to the aristolochiaceæ, sarraceniaceæ, and to the droseraceæ, of which our little sundew is the type. The pitcher is an appendage of the leaf, borne on a prolongation of the midrib which often acts as a tendril. It consists of a tubular or inflated body with two anterior longitudinal ribs, which often develop into elegant fringed wings, and one posterior rib, which usually terminates in a spur, running out just below the hinge of the lid or operculum. The mouth of the pitcher is surrounded by a more or less elaborately constructed collar or peristome. Glands are present on almost all parts of pitcher plants from the stems to the flowers. They vary much in structure but there are only two kinds, the attractive and the digestive. The attractive glands are generally distributed over the plant except on the inside of the pitcher where the digestive glands alone occur. Mr. Hemsley exhibited a new species which is characterised by the under side of the lip being thickly beset with stiff bristles interspersed with honey glands. The function of the bristles in this position is not obvious but their rôle would seem to be preventive to flying insects, though ants might creep amongst them and drink the honey. The honey glands are very prominent, oval or

circular in outline, surrounded by a raised rim, and from one-fiftieth to one-twelfth of an inch in diameter. The digestive glands gradually increase in size from the lip downwards and vary in number from about 2000 to 5000 to the square inch. These glands are many-celled, ovoid or spherical in shape, and over-arched by the growth of the surrounding tissue, so that the surface is smooth to the finger stroking it downwards but rough in moving it upwards owing to the sharp edges of the arches. The arrangement of the parts in this and all the other species favours the descent of insects and other creatures into the pitchers but hinders their escape. The size attained by some of these leaves and pitchers is very great, those of the *Nepenthes rajah* having a total length of between five and six feet, whilst the capacity of the pitchers is as much as two quarts.

LAPAROTOMY IN A CASE OF ANGIO-NEUROTIC ŒDEMA OF THE INTESTINE.

WE have recently called attention to a case of angio-neurotic œdema with gastric symptoms in which the stomach was washed out and a piece of its mucous membrane came away in the fluid.[1] Microscopic examination showed, as had been previously supposed, that the gastric symptoms frequently present in angio-neurotic œdema of the skin are due to œdema of the mucous membrane of the stomach. In the *Boston Medical and Surgical Journal* of March 30th Dr. F. R. Harrington has recorded a most important case in which the small intestine was affected and laparotomy was performed and showed the condition of the intestine. A woman, aged 26 years, was admitted into the Massachusetts General Hospital. She had been admitted four times previously, twice into the surgical wards and twice into the medical wards. On the first occasion her symptoms suggested gall-stones but the subsequent course showed that they were due to an abdominal crisis of angio-neurotic œdema. Her first attack occurred at the age of 11 years and the swelling was confined to the hands and the feet. Attacks followed at decreasing intervals, the longest period of immunity being three months. In the last few years she never passed more than two weeks without an attack. The swellings extended up to the elbows but never above the ankles. The face was sometimes affected, becoming greatly œdematous from the eyes to the clavicles. The lips were swollen and eating was difficult, while the swallowing of liquids caused nausea. Sometimes swellings occurred on the scapulæ and the buttocks. Pain occurred in the lower abdomen and was accompanied by headache, nausea, and vomiting. As much as one or two quarts of green fluid were vomited at a time. During an abdominal attack the urine contained a trace of albumin and a few hyaline casts. Although angio-neurotic œdema was diagnosed the duration and the severity of the abdominal symptoms were thought to justify exploratory laparotomy during an attack. The stomach and the other organs were carefully examined but only the intestines showed anything abnormal. They were congested and so red that mild peritonitis was suspected. Near the ileo-cæcal valve was a cylindrical enlargement of the ileum two and a half inches long, with a circumference twice that of the rest of the intestine. The swelling was evidently in the wall of the bowel. To the touch it was elastic and did not pit on pressure. There was a good deal of clear fluid in the abdomen. Opinions may differ as to whether laparotomy was justified but the case is most instructive both pathologically and clinically. It is a warning to look for angio-neurotic symptoms in a case which may be thought to demand laparotomy. Professor W. Osler has emphasised this point in a paper on the Surgical Importance of the Visceral Crises in the Erythema Group of Skin Diseases.[2] He says: "The possibility of mistaking these visceral crises for appendicitis or intussusception or obstruction of the bowel and handing the patient over to the surgeon for operation is by no means remote." He relates three cases in which operation was performed and says: "The practical lessons to be drawn are, first, that in children with colic the greatest care should be taken to get a full history, which may bring out the fact of previous attacks, either of the skin lesions, of arthritis, or of intestinal crises; and, secondly, to make the most careful inspection of the skin for angio-neurotic œdema, purpura, or erythema."

[1] THE LANCET, Dec. 24th, 1904, p. 1802.

[2] American Journal of the Medical Sciences, May, 1904.

MOTOR MANIACS.

THE motor-car is so useful and when properly driven so valuable a method of communication that no condemnation can be too strong for those who use it improperly. Two cases have recently been before the courts in which motor-cars were the cause of serious injury to persons who had just as much right to use the roadway as had the motor-car driver. In the one case, heard before the magistrates at Slough, George Harris Hendasyde of Edinburgh was committed for trial for feloniously slaying Mary Haines of Colnbrook. The woman was wheeling her baby in a mailcart along the narrow High-street of Colnbrook. She was in the roadway and as she was trying to turn the mailcart on to the pavement the accused's motor-car struck it. The woman, who held on to the handles, was turned completely over on to her head and fractured her skull. As the case is *sub judice* we have, of course, simply stated the facts which were given in evidence. In the other case, which was heard before the Wolverhampton magistrates on April 17th, Joseph Lisle was charged with recklessly driving a motor-car. Evidence showed that the defendant travelled along the Holyhead-road "at a tremendous pace." He ran into a cart drawn by a horse. The horse was killed, being practically smashed to pieces, and three occupants of the cart were seriously injured. The defendant, whose face was cut, was heard to say, "I was only going 60 miles an hour." The magistrates said that they had seriously considered whether they would not send the defendant to prison. However, they had determined not to do so but to fine him £50 and costs, to endorse and to suspend his licence, and to disqualify him from getting another licence for two years. On behalf of the defendant it was asked that the sentence might be suspended pending an appeal as Lisle was engaged to drive in the forthcoming Gordon Bennett cup trials. This, however, was refused and formal notice of appeal was given. Why the magistrates had any doubts as to sending the defendant to prison we cannot understand, but it would not be fair to go further than this confession of ignorance now that notice of appeal has been given.

THE CENTRAL PUBLIC-HOUSE TRUST ASSOCIATION.

THE report of the work accomplished by this association during 1904 shows that the movement in favour of the sale of food and non-intoxicants in public-houses is making good progress. The average licensed victualler looks upon the sale of beer and spirits as his principal, if not his only, object; his interest lies in making as much profit as possible and the customer who spends most money in the place is therefore the most welcome. The Central Public-House Trust Association, recognising the evils of this system, is in favour

of "disinterested management" and the establishments conducted on the principles which it advocates are refreshment houses rather than mere drinking bars. Food as well as non-intoxicating drinks, including tea, coffee, and cocoa, are served as a matter of course. The houses are managed by men who receive a fixed salary and have no interest in the profits arising from the sale of intoxicants but are entitled to a percentage on the profits made by the sale of foods and non-intoxicants. To carry these principles into effect trust companies have been established in various parts of the United Kingdom, the number of such companies registered at the end of December, 1904, being 35 in England, one in Wales, and one in Ireland. In Scotland, where there is a central association under the presidency of Lord Balfour of Burleigh, there are four district trust companies and 14 companies for the management of single public-houses. The total number of public-houses under trust management is 170. Two of these are in London—namely, the "Duke of York," High-street, Shadwell, E., and the "Waterman's Arms," Bankside, S.E., not far from the Surrey end of Blackfriars Bridge. Wherever new working-class residential districts are being developed and it is decided that a licensed house is necessary for the convenience of the public, the owners of the property are urged to enter into negotiations with a trust company to acquire a site and to apply for the new licence rather than to allow the establishing of a "tied house," which is practically the only alternative. The Earl of Lytton is president of the association and Colonel Sir Colin Scott Moncrieff is chairman of the executive committee. The offices are at 116, Victoria-street, Westminster, London, S.W., where a variety of literature relative to the liquor traffic may be obtained. The secretary of the Scottish Association is Mr. J. F. Roxburgh, W.S., 23, Rutland-square, Edinburgh. The Duke of Westminster has lent Grosvenor House, London, W., for the meeting of subscribers to the association to be held on May 23rd at 3 P.M. The Earl of Lytton will be in the chair.

THE MEDICAL MAN, THE CORONER, AND THE PATHOLOGIST.

Two inquests recently concluded by Mr. Troutbeck within a few days of one another illustrate the attitude which he has thought fit to adopt towards the medical profession with regard to the employment of Dr. L. Freyberger for the performance of post-mortem examinations within his jurisdiction, although they scarcely appear to afford examples of the policy which the London County Council has claimed to have adopted in sanctioning the innovation. This policy we understood to be based upon a supposed incompetency on the part of the general medical practitioner to hold necropsies of a trustworthy character, particularly in instances where the cause of death might possibly be obscure, the lack of practice in such matters on the part of the average medical man and difficulty occasionally arising being dwelt upon by those advocating the methods followed by Mr. Troutbeck. It has also been suggested that at times the medical man who had attended the deceased might be desirous of concealing an error in diagnosis or treatment and so might be tempted into a lack of candour as to what the post-mortem examination actually revealed. Turning to the two inquests to which reference has been made above, we observe that in one case death was the result of an abortion criminally produced. Both drugs and instruments were spoken of at the inquest as having been mentioned by the deceased woman as the means used upon her but no trace of the latter agency was found by Dr. Freyberger. This case may well rank as one of importance in which exceptional care and skill would be desirable on the part of whoever performed the post-mortem examination. In the other, however, when we seek to bring it into the same category, we find that as to the manner of death there was no question. A small boy, nine years of age, had been run over by an "electric landaulette," the driver of which was present to admit that the occurrence took place, and the post-mortem examination, again held by Dr. Freyberger, showed that death was due to "fracture of the neck and laceration of the spinal cord and that the liver was found to be torn into six pieces." We can hardly believe that special skill and experience on the part of the pathologist can be necessary to assign the cause of death after a person has been run over by a motor-car, or that the evidence mentioned above would support such a contention. We find it difficult to trace a policy aiming consistently at efficiency in Mr. Troutbeck's actions. The death to which we first referred took place in the Westminster Hospital, the second one in St. George's Hospital. At these two institutions there are gentlemen whose evidence would be at least equal in value to that of Dr. Freyberger as to the post-mortem evidence either of criminal abortion or of the injuries caused by a motor-car. Curiously enough we find that a third inquest was recently held in which the deceased died in St. George's Hospital as the result of being run over by a hansom cab, and in this case apparently all the medical evidence as to the result of the post-mortem examination was given by the house surgeon. We continue to think that until the legislature provides differently the Coroners Act, 1887, as far as it is applicable, should regulate these matters and to be doubtful whether any possible alteration in the law should follow the lines indicated in the city of Westminster and in the south-western district.

THE VISIT OF BRITISH PHYSICIANS AND SURGEONS TO PARIS.

WE are asked to state that the expense of the excursions to Vichy, Evian, and Salies de Béarn in connexion with the visit of British physicians and surgeons to Paris will be entirely defrayed by the municipalities of the three famous watering-places. Intending visitors to Paris should notify to the honorary secretaries of the London Executive Committee, Dr. Dawson Williams, 2, Agar-street, Strand, W.C., and Dr. W. Jobson Horne, 27, New Cavendish-street, Portland-place, W., before Friday, April 28th, which excursion they would like to take part in. Any practitioner who has accepted the invitation and has not received a circular from the London executive committee this week should communicate with one of the honorary secretaries. We may add that the honorary secretaries have no further information with regard to the concessions which the South-Eastern and Chatham Railway and the Nord Company of France are willing to make for the journey from Charing Cross to Paris and back, but Dr. Boyd B. Joll, 8, Hanger-lane, Ealing Common, W., has ascertained that the companies controlling the Newhaven and Dieppe route will grant excursion rates to a party of not less than 30. Communications should be addressed to him. The Paris committee expects to be able to arrange a visit to Bagnoles de l'Orme on the return journey for those who choose this route.

A RECOGNITION OF GOOD WORK.

ALL who work will feel that there is no reward of their services equal to that of right appreciation and the expression of confidence from those with whom they work. Mr. Samuel Osborn, F.R.C.S., who has for many years been the chief surgeon to the Metropolitan Corps of the St. John Ambulance Brigade, has just been made the recipient of a testimonial, of which he has every reason to be proud. It consists of two portions, the one a silver bowl with the following inscription:—

Presented to Samuel Osborn, Esq., F.R.C.S., District Chief Surgeon (No. 1 District) St. John Ambulance Brigade, by the Honorary Surgeons of the District as a small token of their esteem.

The bowl was presented on April 12th, at the headquarters, St. John's Gate, Clerkenwell, on behalf of the honorary surgeons, by Honorary Surgeon J. Bremner, who was introduced by Honorary Surgeon M. K. Hargreaves. Besides the bowl the following address, signed by over 50 of the honorary surgeons, was presented to Mr. Osborn:—

HON. SURGEONS OF THE ST. JOHN AMBULANCE BRIGADE. METROPOLITAN CORPS.

This Testimonial was presented to Chief Surgeon S. Osborn, F.R.C.S., by the Hon. Surgeons of the Metropolitan Corps of the St. John Ambulance Brigade as a mark of their sincere esteem and appreciation for the excellent manner in which he has worked with and for the Honorary Surgeons placed under his care, also for the valuable services he has rendered to the St. John Association as well as to the Brigade in general as Chief Surgeon for a period of twenty-five years, and they trust that he may long be spared to continue his esteemed services, and give his ripened experience to the cause of the St. John Ambulance Brigade.

We join in offering our congratulations to Mr. Osborn upon a worthily deserved recognition of his work.

THE medical officer of health of the Cape Colony states that for the week ending March 25th the condition of the Colony as regards plague was as follows. At East London 3 cases of plague were discovered, occurring respectively in a native male and 2 European males. Plague-infected rodents were found both at East London and at Port Elizabeth. In other districts no case of plague occurred in man or in other animals.

THE Jacksonian prize has been awarded by the Council of the Royal College of Surgeons of England to Mr. Herbert J. Paterson, M.B. Cantab., F.R.C.S. Eng., for his essay on "The Diagnosis and Treatment of such Affections of the Stomach as are amenable to Direct Surgical Interference."

THE annual dinner of the Pharmaceutical Society of Great Britain will be held in the Whitehall Rooms, Hôtel Métropole, London, on Tuesday, May 16th, at 6.45 for 7 o'clock P.M. precisely.

SOME CONSTITUENTS OF VIOLET LEAVES.

WE are not advocating violet leaves as "a cure for cancer." We have not advocated violet leaves as "a cure for cancer." It is probably quite unnecessary to tell our readers these things, but we do so in the hope that through them the false impression of the public may be removed. We recently published a note upon a case where a patient who may have been suffering from malignant disease was apparently relieved of the symptoms, and where an application of violet leaves had been employed. The note was signed by a medical man. On the strength of this certain reckless lay papers have spread the news that THE LANCET advocated violet leaves as "a cure for cancer." We have been congratulated by journals that give prominence to quack preparations upon our breadth of view and we have been inundated with letters from unfortunate persons who have been cruelly deceived by the gross misrepresentation of our position in the matter. It seems now quite impossible to get ahead of the falsehood so circumstantially detailed and so widely circulated; we have therefore decided to make an investigation into the active principles of the violet to which we can refer the medical profession when they are worried with inquiries as to our views on the influence of this plant as "a cure for cancer." The report from our laboratory is as follows:—

A search for active principles is at once suggested when it is assumed that a drug possesses a specific therapeutic action. The result may be to raise empirical to the level of rational treatment but it cannot be said that in every instance the discovery and the recognition of active principles have given any closer insight into the action of drugs from which these principles have been separated in a more or less pure form. Digitalis, for example, is the chief active principle of foxglove but why a glucoside of this particular composition should so powerfully affect the heart it is difficult to say. Its pharmacology may be clear but its physiological action is by no means easily explained on the basis of its composition. The glucosides are, in fact, a very interesting group of bodies, for in many instances the members of the group exercise a powerful physiological action and they are not in any way related to alkaloids nor do they contain in general a nitrogen nucleus but consist apparently of a glucose radicle combined with a hydrocarbon group. The glucosides may be viewed as compound ethers yielding on hydrolysis, as by the agency of a ferment or of a dilute acid, glucose and another substance not belonging to the class of carbohydrates. Salicin, for example, gives glucose and saligenin on boiling with dilute sulphuric acid. Digitalin, however, does not appear to yield sugar but other products which contain carbon and hydrogen. Amygdalin is a rare example of a glucoside containing nitrogen which on hydrolysis splits up into hydrocyanic acid, benzaldehyde, and glucose. It is evident, therefore, that glucosides may give rise to a powerful physiological action, which may be referred to their products of hydrolysis.

According to a recent investigation conducted in THE LANCET Laboratory the fresh green leaves of the violet yield an abundance of a crystalline glucoside when suitably treated. They also yield a definitely crystalline body which behaves—chemically, at any rate—as an alkaloid. The pharmacology of the violet leaf is therefore interesting. The common violet (*viola odorata*) belongs to the group of violaceæ, of which the viola tricolor, or pansy, and ipecacuanha are members also. The pansy contains an emetico-cathartic principle called violin. The fluid extract is said to produce a sense of confusion and dulness in the head, with headache; some dimness of vision, salivation, vesical tenesmus, with frequent and profuse micturition; turbid urine, offensive to the smell; and a sense of heat over the whole body, sweats, itching, and nettle-rash. It is interesting to note that it has been recommended as a specific remedy in crusta lactea or infantile eczema of the head and the face. The fluid extract is said to be successful in the second stage with serous or sero-purulent exudation and crusting. The medicinal virtue is said to reside in the leaves of the pansy plant, and it is the leaves of the violet which have been employed in cancer. We found that on extracting 100 grammes of the fresh green leaves of the common violet with boiling water and after removal of extraneous substances (pectose, &c.) by means of acetate of lead and subsequent removal of the lead by sulphuretted hydrogen a yellowish coloured solution was obtained which on evaporation yielded a dark-coloured treacly mass. It was possible to decolourise the solution with animal charcoal but on exposure to air the colour quickly returned. On placing the sticky mass in vacuo over concentrated sulphuric acid crystals were obtained—some were stellate and feathery, some silky, and others in needles. The yield was about 2 per cent. In this residue no evidence of the presence of an alkaloid was obtained. A solution of the mass was found to reduce alkaline copper solution but the reduction was very much more marked after the solution had been boiled for a few minutes with dilute sulphuric acid. Further, a solution of the crystals yielded no osazone until after treatment similarly with acid.

These results point to the presence of a glucoside and the amount of glucose yielded on hydrolysis was as much as 33 per cent. of the total extract. Alcohol, however, was found to be a much more effective solvent and accordingly 200 grammes of the fresh green leaves were boiled with alcohol under a reflux condenser for several hours, the leaves were strained off, and the liquid was filtered and evaporated slowly to dryness. The residue was taken up with water, the liquid was filtered, and the filtrate was evaporated to dryness on the water bath. A similar treacly residue was obtained which yielded an abundance of crystals when placed in vacuo over strong sulphuric acid. The crystals consisted of silky needles, some were star-shaped and others were feathery masses. There was again no evidence of an alkaloid in these crystals but on hydrolysis they yielded an abundance of glucose to the extent of about 33 per cent. The alcohol extracted furthermore a good deal of dark green oil similar in appearance to apiol or oil of parsley. This oil was shaken with acidulated water and the liquid was filtered. On evaporation a small residue of star-shaped

and feathery crystals was obtained which gave reactions common to alkaloids. In particular an abundant crystalline precipitate was obtained with iodine solution in potassium iodide and with Millon's reagent. A yellowish colour was given with strong sulphuric acid, a reddish-brown with nitric acid, and a greenish colouration with molybdic acid and sulphuric acid. It was then thought desirable to extract the spent leaves—i.e., after they had been extracted with alcohol—with chloroform, the whole mass being made alkaline and pasty by adding magnesia. A certain amount of green oil was thus extracted which remained as a residue after evaporation of the chloroform. The residue was then made slightly acid with hydrochloric acid and water was added. After heating separate quantities of the fluid were filtered and evaporated to dryness in vacuo over strong sulphuric acid. A small but distinct cluster of star-shaped crystals was obtained which was decidedly bitter to the taste and which gave very good general reactions for alkaloids. It would thus appear from this preliminary and, perhaps, somewhat cursory investigation that the violet contains two distinct crystalline principles, a glucoside and an alkaloid, and, in addition, a dark green oil. The glucoside amounted in these experiments approximately to 2 per cent. of the leaves, the oil to 0·3 per cent., while it was not possible to say what quantity of alkaloid was present as the amount yielded was so small. It is, however, interesting to record that the alkaloid from violet leaves behaved chemically much in the same way as emetine, the principal alkaloid of ipecacuanha. We hope to pursue the study and as soon as more material is procurable to extract a tangible quantity of the alkaloid in order to throw more light on its nature and possibly on its composition.

As some proof of the extent to which our mythical words have led to misunderstanding it may be added that we had some difficulty in obtaining a good supply of violet leaves in London, a brisk demand having arisen for them owing, as one vendor in Covent Garden market remarked, "to a fad started by the medical journals about violet leaves being a cure for cancer." We must again disassociate ourselves from this fad. We are not advocating violet leaves as "a cure for cancer." We have not advocated violet leaves as "a cure for cancer."

SIXTY-SIXTH ANNUAL REPORT OF THE REGISTRAR-GENERAL FOR 1903.

II.

IN a previous notice[1] of the Registrar-General's recently issued report we reviewed in general terms that section which treats of the part played by meteorological conditions as a factor of the exceptionally low mortality of the year 1903, special attention being directed to the influence of those conditions on the vitality of the infant part of the population. On the present occasion we propose to consider as fully as space permits the incidence of those particular forms of disease the greater or less fatality of which determines the total mortality in a given time or place.

A commendable feature in the present series of reports is this—that not in the tabular portion alone, but equally in the accompanying commentary, the same general arrangement that characterised the first number of that series has been consistently maintained in the numbers issued subsequently. Especially valuable to those seeking information on a particular subject is the alphabetical index, which has evidently been compiled with much care and which will be found at the end of the volume.

As regards the prevalence of small-pox we learn that although the mortality directly ascribed to that disease in 1903 was only one-third of that of the previous year, nevertheless chicken-pox is stated to have claimed a considerable number of victims. Many of these deaths, however, were almost certainly due to unrecognised small-pox.

In proportion to the number of children living at those ages who are especially liable to these diseases the deaths from measles, scarlet fever, whooping-cough, and diphtheria were considerably below the average. The mortality from the several infectious diseases of children is conveniently shown in Table K which appears in the section of the report dealing with mortality at that time of life. From the general tables in the appendix it appears that diphtheria accounted for a considerably lower general mortality than in any year since 1891. But although in at least 11 counties, including London, this disease was less fatal in 1903 than in the quinquennium immediately preceding, there were still 16 populous English counties wherein the mortality was above that of extra metropolitan England. For several years past an extensive area, including parts of Monmouthshire and South Wales, has been indicated as suffering excessively from diphtheria. In the year 1903 this area was somewhat contracted, but the mortality was still very high in a continuous district mainly included in the former area, and consisting of the unions of Crickhowell in Brecknockshire, of Abergavenny and Bedwellty in Monmouthshire, and of the entire county of Glamorganshire excepting the district of Gower; the diphtheria death-rate in this contracted area amounted to not less than 342 per 1,000,000 of its aggregate population, which is little short of double the rate prevailing in the country generally. Enteric fever accounted in 1903 for a mortality that was the lowest on record. This disease is much more fatal in the town than in the country, not in one year only but on the average of a long series of years. The loss of life is greatest among males, the corrected death-rate being 120 per 1,000,000 for that sex, against only 82 per 1,000,000 for females. Between the ages of 15 and 35 years this disease is particularly fatal. In both sexes the mortality is low in children under five years, after which age it gradually increases to a maximum and thereafter gradually declines. At ages above 65 years the mortality does not greatly differ from that of childhood, the rate at the former age varying from 30 per 1,000,000 in the country to 45 in the town. Among counties with populations exceeding 100,000 the West and North Ridings of Yorkshire and the counties of Lancaster, Glamorgan, and Carmarthen suffered most severely in 1903, the mortality ranging from 135 per 1,000,000 in the first-named county to 184 per 1,000,000 in the last. The mortality from pneumonia fluctuates considerably from year to year. According to the general tables the fatality of that disease appears to have increased in recent years. Some of this increase is unquestionably due to the simultaneous prevalence of influenza, which disease has contributed largely to the death roll, both directly and indirectly, ever since the autumn of 1889. In the year 1903, however, a significant fall took place in the mortality from pneumonia, as well as from bronchitis, a fall which is much greater than that recorded under the head of influenza and apparently independent of the latter. It is in populous communities more particularly that the various types of pneumonia are destructive to life, the table showing an excess of 90 per cent. in the death-rate of the urban as compared with that of the rural districts. The sexes fall victims in unequal proportions, the male rates being in excess of the female by 50 per cent. Childhood and extreme old age are the periods chiefly vulnerable by this disease, the mortality under five years averaging five per 1000 living at that age and the mortality at ages over 65 years averaging 3·5 per 1000 then living. The fall in the mortality from tuberculosis which had been recorded for many past years showed no diminution in 1903. But inasmuch as this disease in one or another of its forms still contributes at least 11 per cent. to the total mortality and accounts for a death-rate of 1742 in each 1,000,000 of the population, medical interest in its ravages continues unabated. Of the total deaths from tuberculous disease nearly 70 per cent. are attributed to "phthisis" and although there is reason to doubt the accuracy of diagnosis as regards some of the deaths thus returned in the "fifties" and "sixties" it is certain that in recent years, at all events, the deaths somewhat indefinitely ascribed to "phthisis" are in reality for the most part due to tuberculous infection. The mortality from pulmonary tuberculosis in 1903 was at the rate of 1427 per 1,000,000 living at all ages among males and at the rate of 993 per 1,000,000 living among females; the mortality of the male sex was therefore greater than that of the female by 44 per cent. As compared with the average in the previous five years the male rate was lower by 93 per 1,000,000 and the female rate lower by 98 per 1,000,000 of the respective populations. Among males the rate was much higher in the town than in the country, whilst among females the difference was inconsiderable.

[1] See THE LANCET, April 1st, 1905, p. 880.

When the 40,000 annual deaths from pulmonary tuberculosis are distributed according to age as well as to sex certain peculiarities appear which are not otherwise noticeable. For example, although the mortality for persons at all ages in 1903 was below the quinquennial average, the fall was practically limited, in the case of males only, to the ages under 55 years. Taking the average rates in the five years ended with 1902 it will be found that this disease was more fatal in the urban counties than in the rural, with the exception that among males aged 15–25 years and among females aged 5–35 years the rural mortality was the highest. These exceptions are remarkable and are worthy of serious consideration by those who are particularly interested in the public health.

The age of maximum mortality may be stated generally as follows. In England and Wales as a whole and also in the urban districts it is at 45–55 for males and 10 years earlier for females; in the rural districts it is 35–45 for both sexes. The local distribution of fatality from this disease varies enormously; in fact, the difference is so great as to suggest that in some parts of this country the causes of death may be certified less carefully than they should be. The present report shows that after adequate allowance for age differences among the living this disease was extremely fatal in South Wales, the death-rates in Carmarthen, Pembroke, and Cardigan averaging 1855 per 1,000,000 for males and 1601 per 1,000,000 for females. In parts of North Wales also the disease was more destructive than elsewhere, the average female death-rate in the counties of Merioneth, Carnarvon, and Anglesey being especially noteworthy and amounting to 1705 per 1,000,000 living of that sex, a rate which is not less than 72 per cent. above that of England and Wales generally. If the mortality from pulmonary tuberculosis be contrasted with that from pneumonia it will be found that whereas the former disease selects its victims mainly from among adolescents and young adults of both sexes—that is to say, from that portion of the population which is economically the most valuable to the community—the latter disease, on the other hand, is fatal for the most part either in infancy or in extreme old age. It is this peculiarity in the age incidence of pulmonary tuberculosis that invests the disease with an importance which otherwise it would share only in common with other large contributors to the death-roll.

Referring yet again to that section of the report which treats of mortality at the earlier ages we learn that in every 1000 children living below the age of five years between three and four are annually sacrificed to tuberculosis, chiefly to the cerebral and abdominal forms of that infection. The deaths from tuberculous meningitis, although now less numerous than formerly, still amount to between 6000 and 7000 annually, nearly 70 per cent. of which are those of children at this early age. Boys under five years succumb to this disease in greater proportion than do girls, a peculiarity that attaches to other forms of tuberculosis likewise.

Equally destructive to child life is tuberculous peritonitis, a disease which, in spite of the protests of the authorities at Pall Mall, is still often miscalled tabes mesenterica. It remains doubtful what proportion of the deaths referred to the latter cause are really tuberculous in character, although the age distribution of the deaths thus returned does not differ greatly from that of the deaths definitely attributed to tuberculous peritonitis. Rheumatic fever is a disease that has attracted greatly increased attention from medical men since its infective nature has become generally recognised. Since 1901 rheumatic fever has been distinguished in the national records from those forms of chronic valvular disease that depend on antecedent acute rheumatism. This arrangement will facilitate the study of rheumatic fever as soon as the data for a considerable number of years are available. Meantime, the following facts have been definitely ascertained concerning the incidence of the disease: first, that fatal cases of it are frequent at all stages of life, and secondly, that although at ages below the fifteenth year girls suffer more severely than boys, at ages above the twenty-fifth year, the mortality is generally highest among men. The only serious exceptions to the rule that the mortality of this country in 1903 was lower than that of recent previous years are furnished by cancer and diabetes mellitus. If the deaths from malignant disease are calculated on the aggregate population the disease would appear to have exacted a death-toll of 732 per 1,000,000 among males and of 1003 per 1,000,000 among females. These rates are the highest on record. We have previously remarked, however, that the crude rate of cancer mortality is misleading for comparative purposes because of changes in the age constitution of the living. But if instead of computing the mortality at all ages we apply the deaths at ages above 35 years to the number then living we obtain the ratio at that stage of life in which cancer is most fatal, and the result duly corrected for age differences in the living is fairly comparable as between different periods or different localities. Calculated in this manner the deaths from cancer in the year 1903 were equal to a rate of 2247 per 1,000,000 males and 2958 per 1,000,000 females living at ages above 35 years, the rates in the preceding five years having averaged 2074 and 2866 per 1,000,000 respectively. From diabetes mellitus there has been an increase in the total death-rate but this increase has affected females exclusively, the mortality among males having shown a slight decline, whilst that of the other sex has increased by 19 per cent as compared with the quinquennial average. Inasmuch as 70 per cent. of the total mortality occurs at ages above 45 years the disease is evidently one of advanced life.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A QUARTERLY meeting of the Council was held on April 13th, the President, Mr. JOHN TWEEDY, being in the chair.

In accordance with the recommendation of the Jacksonian Committee the Council awarded the Jacksonian prize to the author of the dissertation on the Diagnosis and Treatment of such Affections of the Stomach as are Amenable to Direct Surgical Interference, bearing the motto, "Work and Despair Not." The PRESIDENT proceeded to open the envelope bearing this motto and declared that the name written therein was H. J. Paterson, F.R.C.S., M.B., B.C. Cantab. It was resolved that Mr. Paterson should be requested to attend the ordinary meeting of the Council in May to receive the Jacksonian prize.

In accordance with the recommendation of the Jacksonian Committee the following subject was chosen for the Jacksonian prize for the year 1906: "The Diagnosis and Treatment of those Diseases and Morbid Growths of the Vertebral Column, Spinal Cord, and Canal, which are Amenable to Surgical Operations."

The PRESIDENT, on behalf of himself and the Vice-Presidents, reported the delivery of the following Hunterian lectures—viz., three lectures by Mr. P. Lockhart Mummery on the Physiology and Treatment of Surgical Shock and Collapse; three lectures by Mr. W. Sampson Handley on the Dissemination of Mammary Carcinoma; and three lectures by Mr. Clinton T. Dent, two on Congenital Hypertrophic Stenosis of the Pyloric Canal and one on the Forms of Softening and Fracture of the Bones occurring in Childhood and Youth.

The PRESIDENT reported, on behalf of himself and the Vice-Presidents, that Mr. Donald J. Armour, Arris and Gale lecturer, had duly and properly delivered a course of three lectures on the Anatomy, Physiology, Pathology, and Surgery of the Gasserian Ganglion.

A report was received from the committee on the proposed institution by the College of a medical school. The report was adopted; its main features were as follows. It was proposed that the school should provide for the teaching of the earlier subjects—viz., chemistry, physics, and biology—and also the intermediate subjects—viz., anatomy and physiology—and it was suggested that with the concurrence of the Royal College of Physicians of London the Examination Hall buildings, with the addition of a storey on the front portion, might be used for the purpose. This arrangement would provide for about 100 students. The scheme was considered with a great deal of care and estimates were prepared of the annual cost of such a school. From these estimates it appeared that the additional annual cost would be about £4400 after the first two years. The committee was of opinion that it was impracticable for the College to institute such a school without adequate endowment.

A report was received from the discipline committee referring to several cases and the Council directed that

action should be taken in accordance with the recommendation of the committee.

Mr. H. T. Butlin was re-appointed the representative of the College on the Senate of the University of London for a period of four years.

The Council was informed that by the will of the late Mrs. Begley, the widow of Dr. William Chapman Begley, M.R.C.S., there was a bequest of £20 per annum to the College for the purpose of founding a studentship in anatomy and surgery. The Council expressed its willingness to take steps to give effect to Mrs. Begley's wishes.

A letter was read from Mr. W. F. Dearden, honorary secretary of the Association of Certifying Factory Surgeons. It called attention to the proposition contained in the Accidents (Mines and Factories) Bill now before Parliament, to abolish the present statutory requirement placed upon the certifying surgeon to investigate such accidents occurring in factories and workshops as are caused by machinery in motion, explosion, escape of gas, &c., and to substitute a discretionary power with the local factory inspector, who will decide from a perusal of a filled-up notice form sent in by the employer what accidents require a surgeon's investigation. The letter invited the consideration of certain points and asked the College if it should consider the subject to forward the result of such consideration, if in agreement with the contentions of the association, to the Secretary of State for Home Affairs. It was felt by the Council that this was a matter of administration which hardly came within the scope of the functions of the College.

ALCOHOL AND PHYSICAL DETERIORATION.

UNDER the auspices of the Leicester Medical Society, the Leicester division of the British Medical Association, and the Leicester Medical Union a conference of medical men from the town and county of Leicester was held recently at the Leicester town-hall. The chair was taken by Mr. R. C. STEWART (President of the Leicester Medical Society) who introduced Professor G. Sims Woodhead who had been invited to deliver an address upon the Relation of the Use of Alcohol to Physical Deterioration.

Professor SIMS WOODHEAD said that alcohol was one of the great predisposing factors in disease and one of the great factors in preventing physical improvement. It was a potent cause of degeneration not because of its rapid action but because of the changes that it produced in the system, in the first place directly and in the second place indirectly. It was now recognised that alcohol did not act as a stimulant for more than a very short period, if, indeed, it acted as a stimulant at all, but that it acted as a paralysing agent. Even in comparatively small quantities it interfered with the functional activity of the cells. It acted first of all upon the nerve cells, which were the most highly developed in the body and their full functional activity was necessary for the carrying on of the vital processes of the body. If a working man interfered with the perfect health of his nerve cells he became of less value as an individual and to the community and there was a danger of deterioration in his family. It was not the mere actual loss of the money spent in drink but the deterioration of his physical condition which made him of less value in maintaining his family. In the report of the Inter-Departmental Committee on Physical Deterioration the committee always came back to this point: That by getting rid of alcoholism it would be possible to get rid of a great many of those social conditions which appeared to be at the root of much of the degeneration of certain nations and which appeared to prevent more rapid development of others. It had found that if there was a large amount of alcohol taken in any community the amount of physical deterioration was always great; and it also found that if that amount diminished the physical condition invariably improved. It found, for example, that England was in danger of the same evil that faced France at the present time. So long as the men only drank there was no such very marked deterioration but as soon as the women began to drink there was first of all a large increase in the number of infants with unstable nervous systems and in the number of deformed children. Ultimately the women became barren. In France since 1830 there had been a gradual upward trend in the consumption of spirits and there had coincidently been an increase in the consequences of drink, such as accidental deaths, suicides, and lunacy; there had also been a definite increase in the percentage of conscripts refused as unfit for service. In Sweden matters were just the reverse. Since 1830 there had been a great diminution in the amount of spirits drunk in Sweden and there had been a corresponding decrease in crimes, suicides, and deaths from syphilitic diseases; the percentage of conscripts refused had also been steadily reduced. With regard to the medicinal use of alcohol he did not say that there were not certain specific conditions, certain temporary symptoms, when alcohol might do good, but there were other drugs which were fully as efficient.

Mr. STEWART said, speaking for himself, that he agreed with Professor Sims Woodhead entirely in what he had said. For some years past the use of alcohol by the medical profession had been steadily declining. He saw some remarks of a bishop the other day in which his lordship congratulated temperance societies on the work which they had done and he added that one of the most hopeful signs was the conversion of the medical profession on the subject of alcohol. He (Mr. Stewart) rather thought that the medical profession had been going on rather quietly in this matter and, without advertising themselves, had for a considerable time past been giving patients less and less alcohol. So far as asylums went nearly all such institutions in England were giving up alcohol as an article of diet. He had persuaded the committee at his own asylum to do this, but although this happened two years ago the committee still kept asking him how the patients got on without it. He always replied that they got on much better without it, especially the epileptics. Out of 284 patients now in his asylum he was only giving alcohol in the form of medicine to two. Another thing was that if alcohol was given he insisted upon it being given with a meal. When he was appointed to the asylum 20 years ago alcohol was prescribed very largely. Whisky and water and port wine were given at all times of the day. They had tried the experiment of doing without alcohol in many asylums and he thought everybody was agreed that the patients were quieter and received greater benefits without it.

Dr. C. KILLICK MILLARD (medical officer of health of the borough of Leicester) said that in cases of scarlet fever it was not the medical man who cured the patient but nature and the best thing that they could do was not to interfere with nature. He was afraid that in the past medical men had not been so much the handmaid of Nature as ought to have been the case, but he believed that at the present time there was hardly a fever hospital in the country in which alcohol was prescribed.

Professor SIMS WOODHEAD, in reply, said that he was very glad to hear Mr. Stewart say what he had with regard to the medical profession, because it gave him the opportunity to accentuate the fact that medical men at the present time were doing more for temperance work than any other single body of men. That was an exceedingly important point, because their opinion on such a subject was valued and a patient would take the advice of a medical man when he would not take it from anyone else. Proceeding, Professor Sims Woodhead remarked that but for syphilis and alcoholism the asylums of the country would be comparatively empty.

Dr. F. M. POPE proposed a hearty vote of thanks to Professor Sims Woodhead for his address. He said that anyone who had practised medicine for any length of time must have noticed the diminution in the amount of alcohol prescribed directly as a drug. He (Dr. Pope) had the utmost pleasure in saying that he could support everything which Professor Sims Woodhead had said in the direction of the undoubted benefit this had been to medical science. His own view was that they should treat alcohol in the same way as any other drug. They should first satisfy themselves that it was essential and necessary and then it should be given in absolute definite doses. Thirdly, the duration of the time during which the drug should be given should be absolutely in the physician's discretion and should not be exceeded in any circumstances.

Mr. G. C. FRANKLIN, in seconding the motion, said that he was not an old man but he remembered the time when alcohol was declared to be of value in certain diseases, particularly in the treatment of phthisis.

The motion was carried *nemine contradicente*.

Professor SIMS WOODHEAD briefly acknowledged the compliment and the proceedings then closed.

MEDICINE, ITS PRACTICE AND ITS PUBLIC RELATIONS.

CHAPTER VIII.[1]

THE NAVAL AND MILITARY MEDICAL SERVICES (continued).

The Indian Medical Service.—The Old Grievances and the New Warrant.—The Language Examination.—The Treatment of the Civil Side: Bad Pay.—The Naval Medical Service.—Reorganization and Redress.—The Need of Further Reform.—General Considerations.

IN the Naval Medical Service and in the Indian Medical Service, as in the Army Medical Service, we have to consider new conditions of employment designed to meet a growing reluctance on the part of medical men to join the services.

The Indian Medical Service.

New regulations for the Indian Medical Service were issued early in October, 1903. An admirable service in the past, the Indian Medical Service at no time fell from its estate to the depth that we have seen occur in the case of the Army Medical Service. But the Indian Medical Service had manifest grievances which were fast altering its status in the eyes of the medical profession when the new warrant was issued. Complaints were rife which showed that unless measures of reform were granted the splendid service to which India owes so much, and to which our Crown owes so much, was in peril of finding no men to hold its commissions. To begin with, the pay in the Indian Medical Service was poor, inferior to that of the Army Medical Service in almost every instance. Whilst the latter Corps offered to the senior medical officer in charge of a hospital charge allowance at generous rates, and specialist pay in certain cases, no similar allowances were received by the Indian officers. For a long time it had been stated that a corresponding increase of pay to that granted to the Army Medical Service would be given to the Indian Medical Service but the matter remained perpetually "Under consideration." The low pay was the first grievance. Secondly, when an officer of the Indian Medical Service was given an appointment bringing in increased emoluments he had to pay his own passage money to take it up. Thirdly, an officer could only draw the lowest rate of pay until he had passed the language examination, but owing to the frequent moves of junior officers on first landing in the country it was often impossible for them to pass this examination for some time. Fourthly, the emoluments on the civil side, which used to be an alluring factor of the Indian Medical Service, had diminished considerably. Chiefly owing to the increasing number of trained and well-qualified native practitioners—men trained, moreover, at the hospitals manned by the Indian Medical Service—there became less scope for practice, while a limitation of private fees by the Government of India, which many regard as both unfair and objectionable, also reduced the income looked forward to by men in civil employment. Lastly, as regards promotion, a lieutenant-colonel at the age of 55 years was bound to retire on a pension of £500 a year (unless promoted) for 25 years' service and on £700 a year for 30 years' service in similar circumstances. But owing to the diminution of administrative posts that succeeded the amalgamation of the military medical administration of the two services in 1880 there was practically no chance of a lieutenant-colonel of 25 years' service coming up for selection for an administrative post. He thus had to retire upon £500 a year, whereas if he had succeeded to an administrative post he would have earned a pension of £700 by the time he had passed through his term of office, plus the additional £250 a year for the holding of such posts. He lost, in fact, £450 a year as compared with former years. This is a brief summary of the grievances which awaited redress in the Indian Medical Service before the issue of the new warrant.

The new warrant at once adjusted to a substantial extent the irregularity of pay between the two military medical services. The financial condition of the Indian medical officers, as far as concerns the military department, is now much better. The minimum sum which a lieutenant now receives after arrival in India is Rs.420 a month, the equivalent, with the exchange compensation, of £357 a year, while the officer who never aspires to anything beyond the charge of a regiment and who serves for over 25 years will in future draw Rs.1300 a month, which is equivalent to over £1100 a year. To these rates of pay every man who enters the Indian Medical Service may confidently look forward, for paragraph 9 states that "a major is promoted to lieutenant-colonel on completion of 20 years' full pay service"—there is to be no selection for that rank to which every officer who serves long enough will attain. But while the pay is generally improved the remuneration of the administrative posts remains the same save that the pay of the Director-General is increased.

Specialist pay of Rs.60 per mensem is now granted to officers below the rank of lieutenant-colonel but the concession which reads well means very little, for there are very few appointments ever made. Extra furlough is granted to officers who want to take up a special course of study, at the rate of one month of such furlough for each year's service up to 12 months in all. The pensions are increased, that for 20 years' service being raised from £1 per diem to £400 per annum, that for 17 years' service being £300 instead of £292; while Clause 39, which is as follows, is distinctly thought out for the officers' good:—

> 39. With a view to maintain the efficiency of the service, all officers of the rank of lieutenant-colonel and major are placed on the retired list when they have attained the age of 55 years and all surgeon generals and colonels when they have attained the age of 60 years. But a lieutenant-colonel who has been specially selected for increased pay, if he attains the age of 55 years before he becomes entitled to the pension for 30 years' service, may be retained until completion of such service; and in any special case where it would appear to be for the good of the service that an officer should continue in employment he may be so continued, subject in each case to the sanction of the Secretary of State for India in Council.

But the hardship experienced by the officer who enters the service when he is only a day over 25 years of age is to a large extent unredressed, for he forfeits almost to a certainty his chance of ever reaching a higher pension than £500 per annum. It is an absurdity to invite men into the service up to the age of 28 years and at the same time to inform them that the maximum pension is not open to them. As a rule, the men who enter the service after 25 years of age are those who have spent additional time in study in resident hospital posts or in junior teaching appointments in the schools, and such men ought to be encouraged in every way.

The blot in respect of the language examination still remains. No officer, however employed, can receive any staff allowance until he has passed the "lower standard" examination in Hindustani. The hardship of this lies in the impossibility which an officer on first joining the service may experience in obtaining tuition for an examination that is no longer an absolutely easy one. If his frequent moves do not break up his studies, he may be allocated to some remote station where he cannot obtain the services of an instructor; and in either case he is precluded for a long time from drawing his proper pay. A young staff corps officer posted to a native regiment receives full pay for one year pending his passing his examination in languages, and the same treatment should be extended to the young officer of the Indian Medical Service.

Turning from the military to the civil side of the service

[1] Chapters I., II., III., IV., V., VI., and VII., were published in THE LANCET of Feb. 18th (p. 447) and 25th (p. 517), March 4th (p. 593), 18th (p. 736), and 25th (p. 817), April 1st (p. 877) and 8th (p. 1017), 1905, respectively.

we find that the conditions of civil employment are practically unaltered in the new regulations, although three-fifths of the service are in civil employment. An improvement in the pay of the officers in civil employment may have been contemplated, increase and emolument on the military side of the service naturally leading to proportionate increase on the civil side, but the new regulations repeat the instructions that have been in force for years. A surgeon in the Indian Medical Service in civil employment has enormous responsibilities. He acts as sanitary and medical superintendent of the gaol and its hospital, is surgeon to the police, is responsible for the food of the prisoners and for the purchase of the raw materials which their labour is to turn out into marketable manufactures. He may have several outlying dispensaries which he is bound to inspect regularly and which may be four or five days' journey from headquarters, where he also has a dispensary attached to the urban hospital. For the arrangements of his official work and the necessary correspondence he is responsible absolutely. He is assisted only by natives and he has to make good any deficiency in his accounts. For all this he receives less than if he were in medical charge of a regiment, although he has applied successfully as a specially gifted man for civil employment. It is no wonder that there is difficulty in getting candidates to pass from the military side into civil employment, while it is certain that if the best work in the service is the worst paid that service needs reform.

Again, the order that an officer of the Indian Medical Service should refer the question of the amount of his fees, when above a certain low limit, to the civil authority is highly vexatious. No similar proceeding is ordered in any other service in India or elsewhere, and the suggestion that without some such restriction exorbitant fees would be exacted is most unfortunate. This regulation, which has recently been modified but not in a way to remove its sting, points to an official belief that the native, unless protected by the Indian Government, would be exploited by the officers of the Indian Medical Service, a reflection that is felt by many men to be humiliating. It is tantamount to saying that because very large fees have occasionally been received by medical men in India other medical men unless prevented will take unscrupulous steps to obtain a like reward.

The pay of the Director-General of the Indian Medical Service has been increased, as has been said, but his rank remains unaltered. His rank should be increased from that of major-general to that of lieutenant-general, in accordance with the similar concession that has been made to the Director-General of the Army Medical Service, while he should by virtue of his office have a seat on the Viceregal Council and the surgeon-generals of the several provinces should similarly sit on the Councils of the Lieutenant Governors. If medical views could be placed directly before the rulers of the Indian Empire and if the reasons for medical suggestions could be personally explained to the heads of the legislative machinery not only would much needless friction be abolished but more efficacious work could be done.

Lastly, something should be done to increase the rates of temporary and permanent half-pay for those who break down in India and are really incapacitated. Many of the captains in the service are married and the sum of £127 15*s.*, the rate of permanent half-pay accorded to them, is very small. All of us know of cases where men have been so broken down by the Indian climate that they have been forced to retire on this pittance and in a condition where work in private practice in this country is not possible to them. The rates of half-pay are less than those offered to the officers of the Royal Army Medical Corps and they stand in need of revision.

The Government of India owes, perhaps, more to the Indian Medical Service than to any other department in the country. From the days long ago when an Indian surgeon obtained a grant of land for the old East India Company from the then reigning Mogul up to the present time its officers have laboured far and wide in our great dependency for the cause of the Crown. But their recognition has been scanty; and even now that reform has come it has not come in any complete or satisfactory way.

The Naval Medical Service.

Like the Army Medical Service the Naval Medical Service, after enjoying a respectable measure of popularity in the profession for some years, began about 1890 to lose in the eyes of the student the inducements necessary to make him seek a commission. There grew up a feeling in the medical schools that the career offered in the service could not possibly terminate in anything but mediocrity. It was true that the naval medical officer saw the world under splendid auspices; that he picked up, or might pick up, a knowledge of nations and languages denied to his civilian brother; that the work was often not hard and that the pay could not be described as bad, when the cost of living on shipboard is considered. All that was allowed, but when said there was nothing to add. The opportunities for the study of disease that presented themselves to the naval medical officer could not be used save under substantial disabilities. A surgeon in the navy had no opportunity given to him to prosecute scientific research and was obliged to purchase for himself any instruments that he might require. No encouragement, moreover, was offered to the young medical man who desired to investigate some of the numerous problems in tropical disease that lay unravelled beneath his hands. Time spent in such work probably would not win him the commendation of his seniors, while such commendation, if forthcoming, would be but a barren reward in a service where promotion was governed by seniority rather than selection. The service as a consequence was depleted by retirement, withdrawal, and resignation, and the candidates for admission became fewer. The absolute necessity for study-leave and for increased pay, having regard to the slow advance in rank, became obvious, and grievances in respect to the allotment of cabins and the limited boat privileges, which were of real if minor import, were used to reinforce the claim for reform.

Apart from other considerations the re-organisation of the Army Medical Service under the warrant of 1902 made it imperative on the Admiralty to draw up and to issue fresh regulations for the medical department of the Royal Navy. The new warrant appeared almost simultaneously and it was at once seen by those who were thinking of the Naval Medical Service as a career that innovations had been introduced of an advantageous character to the medical department. Comparison with previous regulations showed that a great deal could be done under the amended scheme to increase the efficiency of the Naval Medical Service and to improve it generally, while additional inducements could be held out to those who were thinking of becoming candidates for admission into the service. The framers of the new regulations set about their work in a sincere spirit, the objects aimed at were in the right direction, and the improvements introduced were of a necessary and wholesome kind.

The warrant does not go far enough in some directions and, as will be seen, leaves undealt with matters that are regarded as serious by the officers of the Naval Medical Service, but in the medical profession generally it should restore a waning confidence. It shows a desire to bring the service up to the higher standard demanded by the general progress of medicine. To a great extent the regulations for the Naval Medical Service are framed on the lines of those

in the new warrant for the Army Medical Service. The entrance examination becomes of a more practical and clinical nature, better adapted to, and more befitting, candidates already qualified to practise their profession. The subjects are divided into compulsory and voluntary and the voluntary subjects are selected with a view to secure men with some knowledge of foreign languages and aptitude for natural science. Provision is reserved for the Admiralty to appoint at its discretion a limited number of candidates from medical schools in the United Kingdom and the colonies without any competitive entrance examination. Resident medical officers, house physicians, and house surgeons of large civil hospitals can be promoted to the rank of staff surgeon six months or a year earlier than their fellows, and by a later regulation of the Admiralty a successful candidate for a commission is allowed to serve as a hospital resident for a year after entering the service and to count the time for promotion. An officer can retire after four years' full pay service with a gratuity of £500 and serve in the reserve under conditions which certainly cannot be called onerous.

These changes are intended to insure that those most fully educated and least crammed will be selected for the service, if a sufficient number of candidates put in their appearance, and thus the principle of selection can be adopted at the very outset of the naval medical career. With the exception of a few specified appliances, a pocket case of instruments, a stethoscope, and three clinical thermometers, all surgical instruments are supposed to be provided at the public expense. A very important regulation is introduced in regard to courses of instruction, under which medical officers can have practical opportunities and facilities for keeping abreast with the progress of their profession and for studying special branches of it.

Every medical officer is now required to undergo a post-graduate course of three months' duration at a metropolitan hospital once in every eight years (should the exigencies of the service permit), and this as far as possible during his surgeon's, staff surgeon's and fleet surgeon's period of service. While carrying out this course the medical officer will be borne on a ship's books for full pay and will be granted lodging and provision allowances, and travelling expenses, as for service under the regulations to and from his home or port. He pays the necessary fees for each course himself and must produce certificates of attendance upon the practice of the hospital and of having taken out courses of operative surgery, bacteriology, ophthalmic surgery, and skiagraphy.

All this spells great improvement, though in detail the warrant has not escaped criticism. It will be observed that the medical officers of the navy are required to undergo the course of post-graduate study at their own expense, although lodging allowance is paid to them, as it is to all other officers not provided with quarters on a ship. To produce separate certificates of efficient attendance upon classes in the five named subjects would cost in any London school about £35, which is a severe tax. The time, it is hoped, may be approaching when our naval medical officers will receive full subsidies from Government. That time will be when the Admiralty recognises that a medical officer in the navy does not exist only "to doctor people" but that he has functions of the highest importance to discharge in the prevention of disease.

As regards pay and allowances and charge pay all are somewhat improved. The application of the principle of promotion by selection instead of seniority is more fully recognised and encouragement is held out to professional merit. Better provision is made for cabins for naval medical officers. In short, the new regulations for the Medical Department of the Royal Navy are directed towards the reform of manifest abuses. The new warrant for the Army Medical Service offers points of comparison. The army officers have an opportunity of gaining from three to 18 months' earlier promotion on passing their promotion examination with distinction, but no such provision prevails in the navy. In the army allowances are better, the new regulations for full-pay sick leave are more generous, and charge pay is provided for officers of whatever rank in charge of beds according to numbers, whereas in the navy there is charge pay for inspector-generals only, a very limited number. In attempting to estimate the Naval Medical Service as a calling by comparing it with the Army Medical Service more attention should be paid to points in which the former has an advantage over the latter. Take, for example, the question of allowances. In the army officers have to maintain lodgings, board, and servant, while in the navy an officer has a furnished cabin, a servant, and a capital mess, for which he pays 2*s.* a day only, so that from a pecuniary point of view, if a man is careful, the navy is the better service. In the Naval Medical Service promotion is given for "distinguished service or conspicuous professional merit" and such promotions are maintained up to the full number allowed. Officers may get on the list of staff-surgeons—i.e., officially ranking with major—who have not more than four or five years' service as surgeons. Although all the officers in charge of small hospitals or marine infirmaries belonging to the navy do not get "charge pay" they get it as "hospital allowance." With regard to full-pay sick leave it is true that the army medical officer is better off, but all naval officers, and not only naval medical officers, suffer in the same way by comparison with the army officers. Under the new warrant a bid has been made for candidates of the best sort. A man can now fill the coveted junior posts at his hospital and count the time for promotion, he can retire in favourable circumstances if he finds that his bent is more towards civilian practice, and he has opportunities afforded him for scientific work. There is plenty of room for criticism but much progress has to be admitted.

The various advantages and disadvantages of joining the three services counterbalance each other fairly, and it must be generally allowed that in each the position for the medical profession is a hopeful one. There are many matters that call for legitimate criticism, but in all three services the tendency is towards the recognition of scientific merit, while the recent concessions to professional opinion and common sense may be regarded as an earnest for further reform. I would summarise the position as follows. Whereas a few years ago the dean of a medical school who allowed his pupils to enter for commissions to any of the three services without warning them of possible disappointment defaulted in his duty, to-day if he recommended a promising young medical man not to compete for a commission he would take upon himself a great responsibility. In all three services there is increasing scope for the best sort of scientific medical men and although it is the duty of deans and teachers to be aware of the drawbacks to the services they should also be acquainted with the movement towards far better things.

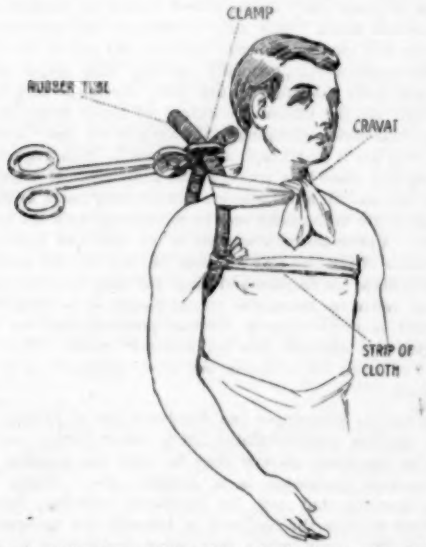
(To be continued.)

THE CONSERVATIVE TREATMENT OF TUBERCULOUS ARTHRITIS.

Professor Bier has lately reported in the *Münchener Medicinische Wochenschrift* a number of remarkable successes in the treatment of acute and chronic osteomyelitis. As we have received inquiries from more than one correspondent as to what Professor Bier's technique is we publish the following account, which has been sent to us by our Swiss correspondent.

After studying the question of the conservative treatment of joints affected by tuberculous processes by means of passive hyperæmia, Professor Dr. A. Bier, who occupies the chair of clinical surgery at Bonn (Germany), gives the following description of his method in his treatise on Hyperæmia (Hyperaemie als Heilmittel). He employs

constriction of the limb *above* the affected joint by means of a rubber (Martin) bandage applied over a gauze bandage which is to prevent excessive pressure. The rubber bandage must not be applied tightly enough to cause either pain or paræsthesia. If it causes discomfort it should be loosened at once; on the contrary, pain in the diseased joint should disappear during the application of the bandage. The subcutaneous veins swell and the skin assumes a bluish tint; in the case of the arm, the elbow and the palm of the hand only retain a rosy hue. The parts peripheral to the bandage should show an increased, never a decreased, temperature. This constriction can be applied over all joints except the hip-joint. In the case of the shoulder-joint the technique is not quite so simple. A necktie is loosely tied round the neck like a cravat (see illustration). A thick



The size of the clamp and the rubber tube has been exaggerated in the sketch.

rubber tube is passed round the shoulder-joint as high as possible, one end being inside and the other outside the necktie. The ends of the rubber tube are firmly tied together, the knot being secured by a pair of artery forceps to prevent it slipping. Cotton-wool is used as a pad underneath the rubber tube to avoid undue local pressure. A bandage passed round the opposite axilla secures the tube more firmly and keeps it in position. In the case of tuberculous joints when only constriction of short duration is applied the peripheral portion of the limb is not bandaged. The surgeon himself should apply the constriction several times and in the case of patients wanting in intelligence even a good many times, but afterwards the patient or his friends can continue the simple treatment with due precautions. The constriction should *not* be allowed to remain on *more than one hour a day*. Thus Professor Bier has succeeded in avoiding some very disagreeable consequences which ensued when constriction was employed many hours consecutively. These complications were the formation of luxuriant granulations, of large or numerous small abscesses, or even the occurrence of acute inflammation. Very often cold abscesses appear during treatment, as the latter promotes the elimination of morbid material. The abscesses are best incised and treated antiseptically. Sometimes small pieces of necrosed bone have to be removed. The results are at times very striking, mostly gratifying, as the tuberculous process becomes extinct after a treatment varying from three to six months or longer. Professor Bier prefers the patients to move their diseased limbs as much as the pain will allow. If these methods fail he resorts to operative interference. The following cases speak well for the results. Case 1. The patient was a boy, eight years old, who had tuberculous arthritis of the knee-joint of two years' duration. There was subluxation of the tibia backwards with some flexion but little pain. He could not walk. Injections of iodoform and treatment with superheated air were tried without any benefit. Hyperæmia, induced by constriction from May 14th to June 27th, 1892, brought the process to a standstill. After ten years, the young man had a moveable knee-joint without any thickening; he can stand and walk all day and only limps a little after great exertion. Case 2. The patient, a young tailor, aged 17 years, had suffered from tuberculous disease in the small bones of the wrist for two years. There was a spindle-shaped swelling. The joint was almost immoveable owing to great pain and adhesions. The hand was useless. Constriction was applied from June till August, 1892. The young man is now well and is gaining a living as a groom. Case 3. The patient was a girl, aged 11 years, with a spindle-shaped swelling of the elbow-joint, which was fixed at a right angle, the movements being very limited and painful. Constriction was employed daily for one hour from March 15th to June 26th, 1892. After ten years, the girl could use her arm for every kind of work, though after great exertion the joint feels weak. This conservative method of treatment is both simple and cheap and it can be employed for out-patients with little supervision after the first weeks. If other observers do not report favourably about it their technique may be at fa[ult]

ROYAL COLLEGE OF PHYSIC[IANS OF] LONDON.

ELECTION OF PRESIDENT.

AN extraordinary Comitia was held on M[onday] Sir WILLIAM S. CHURCH, Bart., K.C.B., being in the chair.

The PRESIDENT announced that the Gilbert [Blane] had been awarded to Staff-Surgeon Sidney [Smith], H.M.S. *Vestal*, and to Surgeon Robert Willi[am] Stewart, H.M.S. *Thames*. He also announced that [the] Hawkins medal had been awarded to Sir Patrick Mans[on].

The PRESIDENT delivered the usual annual address, in the course of which he referred to the lives of eight Fellows who had died during the year—namely, Dr. Charles Kelly, Dr. T. Gilbart Smith, Sir Frederic Bateman, Dr. Angel Money, Dr. William Lee Dickinson, Dr. G. Vivian Poore, Dr. W. G. V. Lush, and Dr. Adam Bealey. The President referred to the Royal honours and distinctions which had been conferred on certain members of the medical profession and to the awards of medals, prizes, and scholarships connected with the College. He also mentioned the lectures which had been delivered, drawing especial attention to the Harveian oration and to the Fitz-Patrick and Oliver Sharpey lectures. He then reviewed some of the work accomplished by the College and the many important committees which had been appointed during the year, particularly that concerned with communications with various departments of State.

Sir HERMANN WEBER proposed a vote of thanks to Sir William Church for having acted as President during the past six years. He also thanked him for his address and requested that it might be printed and distributed to the Fellows.

Sir WILLIAM CHURCH returned thanks to the College and acceded to the request to have his address printed. He then vacated the chair.

The REGISTRAR (Dr. E. LIVEING) read the regulations which govern the election of President. The election was proceeded with. At the first ballot the result was as follows: Sir Richard Douglas Powell, 51 votes; Sir William H. Broadbent, 50; Dr. P. H. Pye-Smith, 27; Sir Thomas Barlow, 2; Sir John Williams, 1, Dr. W. H. Allchin, 1; Sir William Church, 1; Dr. F. W. Pavy, 1; and Dr. D. Ferrier, 1. A second ballot was then taken, with the result that Sir R. Douglas Powell was elected President, receiving 74 votes, while Sir William Broadbent received 59.

The charge was delivered by the SENIOR CENSOR (Dr. T. H. GREEN) and the PRESIDENT pledged his faith to the College.

Sir R. DOUGLAS POWELL thanked the College for the honour that had been accorded to him in electing him as President.

Licences to practise physic were granted to Sydney Herbert Daukes, Cambridge and London Hospital; David Morgan

Jones, Glasgow and London Hospital; William Herbert Lowry, Toronto; Edgar Coningsby Myott, Manchester and Guy's Hospital; and Lewis Thomas, Dalhousie and the Middlesex Hospital.

The following communications were received:—1. From the secretary of the Royal College of Surgeons of England reporting certain proceedings of its Council on Feb. 9th. 2. From the secretary-general of the International Congress of Medicine to be held at Lisbon from April 19th to 26th, 1906, asking the College to send a delegate to represent it at the Congress. It was resolved to send a delegate who should be nominated by the President.

Dr. NORMAN MOORE proposed the following motion:—

That in view of the constantly increasing mortality from plague in India since 1896 and of the recorded mortality of 252,000 in January and February of the present year a committee be appointed to report to the College on the desirability of the College addressing His Majesty's Government on the subject.

This was seconded by Sir DYCE DUCKWORTH, supported by Dr. J. F. PAYNE, and carried. The nomination of the members of the committee was left in the hands of the President.

A communication was received from Dr. W. H. Dickinson resigning his office of curator of the museum and Dr. S. J. [illegible]ay was elected as his successor. A vote of thanks [illegible]orded to Dr. Dickinson for his past services. The [illegible] then dissolved the Comitia.

[illegible]DICINE AND THE LAW.

[illegible]l Man's Evidence in a Court of Law.

[illegible] paper entitled "Notes upon the Law of [illegible] by Mr. Justice Walton at the recent meeting [illegible]-Legal Society, he thus summed up his [illegible] to witnesses, medical and others: They must [illegible]hole question propounded before venturing to [illegible]ust say exactly what they mean; they must not [illegible]pirit of suspicion in the witness box; and above [illegible] must not worry themselves with a fear of infringing [illegible]ical rules of evidence. A suspicious demeanour will [illegible]as both judge and jurors unfavourably. The infraction of any rule of evidence will be keenly watched for by the opposing counsel—*c'est son métier*. Relevant evidence to be valid must be given in court, under oath and subject to rigid cross-examination. Hence, only original facts actually seen and heard are admitted and they must be evidenced solely by those who saw and heard them. A cardinal rule of wide application is that hearsay testimony must be rejected; thus Sir Thomas Stevenson was stopped from offering testimony as to the results of a chemical analysis performed by his assistant. It may be stated broadly that it is in the interest of public justice that the law imposes its limitations and exceptions to what are considered the general rules of logic and common sense. A judicial trial is unlike a scientific investigation for the juror is an untrained observer and a legal issue cannot be postponed indefinitely from time to time for further or more accurate inquiry. There are, however, a few apparent exceptions to the principle of the rejection of hearsay testimony but on investigation it will be found that most of these exceptions are more or less in the nature of original evidence. Many instances of these exceptions are specially pertinent to medical men who would be wise to record at once in black and white any statements which may have to be repeated by them in court. Hearsay testimony is commonly allowed in the coroner's court and this in spite of the accidental fact that the press, by publishing the facts elicited by the inquest jury, may prejudice public opinion. It is the medical adviser who often catches the last whisper of a victim conscious of impending dissolution as to the cause of the fatal event. Lastly, the evidence of a medical practitioner may be important when the legal doctrine of the admissibility of statements in the nature of *res gestæ* is applied. Words may be repeated as evidence where an exclamation forms part of the act under discussion; it is then a question, as Dr. Blake Odgers, K.C., pointed out at the meeting, rather of *when* than of *by whom* the words were uttered. The natural expression of a frightened man who has allowed himself no time to concoct a lie is an example; the cry of the newly born babe may be adduced in evidence of live-birth, although there may be *vox et præterea nihil*. The words may be uttered by an offender or by a victim, as in the case of an indecent assault or of a rape, in which cases a considerable interval of time has been allowed to elapse after the alleged act and before the statement was made. Sir Joseph Walton further gave as an exception where hearsay testimony was allowed statements made to a medical man by his patient describing symptoms—that is, what is felt and suffered; the admission of such testimony might also be justified upon the ground that it is largely with the aid of this voluntary information that the medical man is enabled to arrive at a correct diagnosis and to prosecute a line of treatment and as his diagnosis may be demanded in court the facts which led up to it should also be allowed. The learned judge strongly approved of medical assessors in place of medical experts as witnesses; it is well known that Sir Joseph Walton uses assessors frequently and he regrets that the powers given to common law courts to employ them, under the Judicature Acts, are so neglected. While admitting the benefit of assessors in civil courts, he considers that it will be impossible to extend the practice to criminal courts, for thereby the right to cross-examine is lost and therefore counsel would oppose vehemently any alteration of the present law in this sense.

Russian Estimate of the Value of Formalin in Cases of Poisoning.

The Medical Council of St. Petersburg, having considered the representation of one of the medical committees respecting the methods adopted to preserve intestines intended to be examined for judicial purposes, has decided that in cases where spirit cannot be employed a 10 per cent. solution of formalin may be used. But considering that formalin combines intimately with several substances and thus renders a proper investigation impossible, it appears necessary that at the time the intestines are placed in the said solution, a part of the stomach, bowels, &c., should be hermetically sealed in a vessel or vessels without the addition of any preservative substance whatever. Respecting the action of formalin the council observes that such poisons as strychnine, veratrine, morphine, atropine, and phosphorus will remain in the organs for a very long time with a 10 per cent. aqueous solution of formalin.

Anthrax an Accident under the Workmen's Compensation Act.

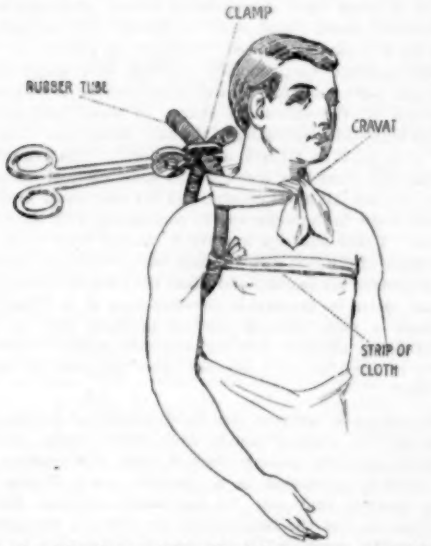
Instances have frequently occurred in which there has been considerable legal dispute as to whether the term "accident" used in the Workmen's Compensation Act covers certain matters which in ordinary conversation we should hardly class as accidents. Infection with anthrax has been one of these and the tendency of recent decisions has been to class this and similar dangerous conditions arising out of the workman's employment as "accidents." The House of Lords has now upheld these, the Lord Chancellor observing, in moving the rejection of the employers' appeal, that it did not appear to him that by calling the consequences of an accidental injury a disease the nature of the consequential results of the injury was affected. He gave as parallel instances infection with anthrax, erysipelas, or tetanus following slight accidental injuries perhaps not noticed at the time and not necessarily followed by these results. The question is one of legal rather than of medical importance but for the fact that at the hearing of claims of the kind referred to medical men are the most important witnesses called and that it is consequently useful for them to bear in mind when treating their patients that legal inquiry will follow in which their procedure, among other matters, will probably come under discussion.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8560 births and 4958 deaths were registered during the week ending April 15th. The annual rate of mortality in these towns, which had been 15·9, 15·7, and 15·7 per 1000 in the three preceding weeks, rose again to 16·6 per 1000 last week. In London the death-rate was 16·1 per 1000, while it averaged 16·8 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 9·0 in Kings Norton, 9·3 in Handsworth (Staffs.), 9·6 in Leyton, 9·9 in Hornsey and in Burton-on-Trent, 10·3 in Walthamstow, and 10·6 in East Ham; the highest rates were

constriction of the limb *above* the affected joint by means of a rubber (Martin) bandage applied over a gauze bandage which is to prevent excessive pressure. The rubber bandage must not be applied tightly enough to cause either pain or paræsthesia. If it causes discomfort it should be loosened at once; on the contrary, pain in the diseased joint should disappear during the application of the bandage. The subcutaneous veins swell and the skin assumes a bluish tint; in the case of the arm, the elbow and the palm of the hand only retain a rosy hue. The parts peripheral to the bandage should show an increased, never a decreased, temperature. This constriction can be applied over all joints except the hip-joint. In the case of the shoulder-joint the technique is not quite so simple. A necktie is loosely tied round the neck like a cravat (see illustration). A thick



The size of the clamp and the rubber tube has been exaggerated in the sketch.

rubber tube is passed round the shoulder-joint as high as possible, one end being inside and the other outside the necktie. The ends of the rubber tube are firmly tied together, the knot being secured by a pair of artery forceps to prevent it slipping. Cotton-wool is used as a pad underneath the rubber tube to avoid undue local pressure. A bandage passed round the opposite axilla secures the tube more firmly and keeps it in position. In the case of tuberculous joints when only constriction of short duration is applied the peripheral portion of the limb is not bandaged. The surgeon himself should apply the constriction several times and in the case of patients wanting in intelligence even a good many times, but afterwards the patient or his friends can continue the simple treatment with due precautions. The constriction should *not* be allowed to remain on *more than one hour a day*. Thus Professor Bier has succeeded in avoiding some very disagreeable consequences which ensued when constriction was employed many hours consecutively. These complications were the formation of luxuriant granulations, of large or numerous small abscesses, or even the occurrence of acute inflammation. Very often cold abscesses appear during treatment, as the latter promotes the elimination of morbid material. The abscesses are best incised and treated antiseptically. Sometimes small pieces of necrosed bone have to be removed. The results are at times very striking, mostly gratifying, as the tuberculous process becomes extinct after a treatment varying from three to six months or longer. Professor Bier prefers the patients to move their diseased limbs as much as the pain will allow. If these methods fail he resorts to operative interference. The following cases speak well for the results. Case 1. The patient was a boy, eight years old, who had tuberculous arthritis of the knee-joint of two years' duration. There was subluxation of the tibia backwards with some flexion but little pain. He could not walk. Injections of iodoform and treatment with superheated air were tried without any benefit. Hyperæmia, induced by constriction from May 14th to June 27th, 1892, brought the process to a standstill. After ten years, the young man had a moveable knee-joint without any thickening; he can stand and walk all day and only limps a little after great exertion. Case 2. The patient, a young tailor, aged 17 years, had suffered from tuberculous disease in the small bones of the wrist for two years. There was a spindle-shaped swelling. The joint was almost immoveable owing to great pain and adhesions. The hand was useless. Constriction was applied from June till August, 1892. The young man is now well and is gaining a living as a groom. Case 3. The patient was a girl, aged 11 years, with a spindle-shaped swelling of the elbow-joint, which was fixed at a right angle, the movements being very limited and painful. Constriction was employed daily for one hour from March 15th to June 26th, 1892. After ten years, the girl could use her arm for every kind of work, though after great exertion the joint feels weak. This conservative method of treatment is both simple and cheap and it can be employed for out-patients with little supervision after the first weeks. If other observers do not report as favourably about it their technique may be at fault.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

ELECTION OF PRESIDENT.

AN extraordinary Comitia was held on Monday, April 17th, Sir WILLIAM S. CHURCH, Bart., K.C.B., the President, being in the chair.

The PRESIDENT announced that the Gilbert-Blaine medals had been awarded to Staff-Surgeon Sidney Thomas Reid, H.M.S. *Vestal*, and to Surgeon Robert William Glennan Stewart, H.M.S. *Thames*. He also announced that the Bisset Hawkins medal had been awarded to Sir Patrick Manson.

The PRESIDENT delivered the usual annual address in the course of which he referred to the lives of eight Fellows who had died during the year—namely, Dr. Charles Kelly, Dr. T. Gilbart Smith, Sir Frederic Bateman, Dr. Angel Money, Dr. William Lee Dickinson, Dr. G. Vivian Poore, Dr. W. G. V. Lush, and Dr. Adam Bealey. The President referred to the Royal honours and distinctions which had been conferred on certain members of the medical profession and to the awards of medals, prizes, and scholarships connected with the College. He also mentioned the lectures which had been delivered, drawing especial attention to the Harveian oration and to the Fitz-Patrick and Oliver Sharpey lectures. He then reviewed some of the work accomplished by the College and the many important committees which had been appointed during the year, particularly that concerned with communications with various departments of State.

Sir HERMANN WEBER proposed a vote of thanks to Sir William Church for having acted as President during the past six years. He also thanked him for his address and requested that it might be printed and distributed to the Fellows.

Sir WILLIAM CHURCH returned thanks to the College and acceded to the request to have his address printed. He then vacated the chair.

The REGISTRAR (Dr. E. LIVEING) read the regulations which govern the election of President. The election was proceeded with. At the first ballot the result was as follows: Sir Richard Douglas Powell, 51 votes; Sir William H. Broadbent, 50; Dr. P. H. Pye-Smith, 27; Sir Thomas Barlow, 2; Sir John Williams, 1, Dr. W. H. Allchin, 1; Sir William Church, 1; Dr. F. W. Pavy, 1; and Dr. D. Ferrier, 1. A second ballot was then taken, with the result that Sir R. Douglas Powell was elected President, receiving 74 votes, while Sir William Broadbent received 59.

The charge was delivered by the SENIOR CENSOR (Dr. T. H. GREEN) and the PRESIDENT pledged his faith to the College.

Sir R. DOUGLAS POWELL thanked the College for the honour that had been accorded to him in electing him as President.

Licences to practise physic were granted to Sydney Herbert Daukes, Cambridge and London Hospital; David Morgan

Jones, Glasgow and London Hospital; William Herbert Lowry, Toronto; Edgar Coningsby Myott, Manchester and Guy's Hospital; and Lewis Thomas, Dalhousie and the Middlesex Hospital.

The following communications were received:—1. From the secretary of the Royal College of Surgeons of England reporting certain proceedings of its Council on Feb. 9th. 2. From the secretary-general of the International Congress of Medicine to be held at Lisbon from April 19th to 26th, 1906, asking the College to send a delegate to represent it at the Congress. It was resolved to send a delegate who should be nominated by the President.

Dr. NORMAN MOORE proposed the following motion:—

That in view of the constantly increasing mortality from plague in India since 1896 and of the recorded mortality of 252,000 in January and February of the present year a committee be appointed to report to the College on the desirability of the College addressing His Majesty's Government on the subject.

This was seconded by Sir DYCE DUCKWORTH, supported by Dr. J. F. PAYNE, and carried. The nomination of the members of the committee was left in the hands of the President.

A communication was received from Dr. W. H. Dickinson resigning his office of curator of the museum and Dr. S. J. Sharkey was elected as his successor. A vote of thanks was accorded to Dr. Dickinson for his past services. The PRESIDENT then dissolved the Comitia.

MEDICINE AND THE LAW.

The Medical Man's Evidence in a Court of Law.

IN the learned paper entitled "Notes upon the Law of Evidence," read by Mr. Justice Walton at the recent meeting of the Medico-Legal Society, he thus summed up his practical advice to witnesses, medical and others: They must listen to the whole question propounded before venturing to reply; they must say exactly what they mean; they must not manifest a spirit of suspicion in the witness box; and above all they must not worry themselves with a fear of infringing technical rules of evidence. A suspicious demeanour will bias both judge and jurors unfavourably. The infraction of any rule of evidence will be keenly watched for by the opposing counsel—*c'est son métier*. Relevant evidence to be valid must be given in court, under oath and subject to rigid cross-examination. Hence, only original facts actually seen and heard are admitted and they must be evidenced solely by those who saw and heard them. A cardinal rule of wide application is that hearsay testimony must be rejected; thus Sir Thomas Stevenson was stopped from offering testimony as to the results of a chemical analysis performed by his assistant. It may be stated broadly that it is in the interest of public justice that the law imposes its limitations and exceptions to what are considered the general rules of logic and common sense. A judicial trial is unlike a scientific investigation for the juror is an untrained observer and a legal issue cannot be postponed indefinitely from time to time for further or more accurate inquiry. There are, however, a few apparent exceptions to the principle of the rejection of hearsay testimony but on investigation it will be found that most of these exceptions are more or less in the nature of original evidence. Many instances of these exceptions are specially pertinent to medical men who would be wise to record at once in black and white any statements which may have to be repeated by them in court. Hearsay testimony is commonly allowed in the coroner's court and this in spite of the accidental fact that the press, by publishing the facts elicited by the inquest jury, may prejudice public opinion. It is the medical adviser who often catches the last whisper of a victim conscious of impending dissolution as to the cause of the fatal event. Lastly, the evidence of a medical practitioner may be important when the legal doctrine of the admissibility of statements in the nature of *res gestæ* is applied. Words may be repeated as evidence where an exclamation forms part of the act under discussion; it is then a question, as Dr. Blake Odgers, K.C., pointed out at the meeting, rather of *when* than of *by whom* the words were uttered. The natural expression of a frightened man who has allowed himself no time to concoct a lie is an example; the cry of the newly born babe may be adduced in evidence of live-birth, although there may be *vox et præterea nihil*. The words may be uttered by an offender or by a victim, as in the case of an indecent assault or of a rape, in which cases a considerable interval of time has been allowed to elapse after the alleged act and before the statement was made. Sir Joseph Walton further gave as an exception where hearsay testimony was allowed statements made to a medical man by his patient describing symptoms—that is, what is felt and suffered; the admission of such testimony might also be justified upon the ground that it is largely with the aid of this voluntary information that the medical man is enabled to arrive at a correct diagnosis and to prosecute a line of treatment and as his diagnosis may be demanded in court the facts which led up to it should also be allowed. The learned judge strongly approved of medical assessors in place of medical experts as witnesses; it is well known that Sir Joseph Walton uses assessors frequently and he regrets that the powers given to common law courts to employ them, under the Judicature Acts, are so neglected. While admitting the benefit of assessors in civil courts, he considers that it will be impossible to extend the practice to criminal courts, for thereby the right to cross-examine is lost and therefore counsel would oppose vehemently any alteration of the present law in this sense.

Russian Estimate of the Value of Formalin in Cases of Poisoning.

The Medical Council of St. Petersburg, having considered the representation of one of the medical committees respecting the methods adopted to preserve intestines intended to be examined for judicial purposes, has decided that in cases where spirit cannot be employed a 10 per cent. solution of formalin may be used. But considering that formalin combines intimately with several substances and thus renders a proper investigation impossible, it appears necessary that at the time the intestines are placed in the said solution, a part of the stomach, bowels, &c., should be hermetically sealed in a vessel or vessels without the addition of any preservative substance whatever. Respecting the action of formalin the council observes that such poisons as strychnine, veratrine, morphine, atropine, and phosphorus will remain in the organs for a very long time with a 10 per cent. aqueous solution of formalin.

Anthrax an Accident under the Workmen's Compensation Act.

Instances have frequently occurred in which there has been considerable legal dispute as to whether the term "accident" used in the Workmen's Compensation Act covers certain matters which in ordinary conversation we should hardly class as accidents. Infection with anthrax has been one of these and the tendency of recent decisions has been to class this and similar dangerous conditions arising out of the workman's employment as "accidents." The House of Lords has now upheld these, the Lord Chancellor observing, in moving the rejection of the employers' appeal, that it did not appear to him that by calling the consequences of an accidental injury a disease the nature of the consequential results of the injury was affected. He gave as parallel instances infection with anthrax, erysipelas, or tetanus following slight accidental injuries perhaps not noticed at the time and not necessarily followed by these results. The question is one of legal rather than of medical importance but for the fact that at the hearing of claims of the kind referred to medical men are the most important witnesses called and that it is consequently useful for them to bear in mind when treating their patients that legal inquiry will follow in which their procedure, among other matters, will probably come under discussion.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8560 births and 4958 deaths were registered during the week ending April 15th. The annual rate of mortality in these towns, which had been 15·9, 15·7, and 15·7 per 1000 in the three preceding weeks, rose again to 16·6 per 1000 last week. In London the death-rate was 16·1 per 1000, while it averaged 16·8 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 9·0 in Kings Norton, 9·3 in Handsworth (Staffs.), 9·6 in Leyton, 9·9 in Hornsey and in Burton-on-Trent, 10·3 in Walthamstow, and 10·6 in East Ham; the highest rates were

21·0 in Hanley, 21·2 in Middlesbrough, 21·3 in Manchester, 21·4 in Ipswich, 21·9 in Stockton-on-Tees, 23·8 in St. Helens, 26·3 in Tynemouth, 26·7 in Rhondda, and 31·1 in Merthyr Tydfil. The 4958 deaths in these towns last week included 553 which were referred to the principal infectious diseases, against 494, 483, and 430 in the three preceding weeks; of these 553 deaths, 231 resulted from measles, 148 from whooping-cough, 58 from diphtheria, 52 from scarlet fever, 42 from diarrhœa, 20 from "fever" (principally enteric), and two from small-pox. No death from any of these diseases was registered last week in Northampton, Great Yarmouth, Burton-on-Trent, Wolverhampton, Handsworth (Staffs.), Kings Norton, Wallasey, Bootle, Rochdale, Preston, Barrow-in-Furness, or Huddersfield; while they caused the highest death-rates in Southampton, West Bromwich, St. Helens, Sheffield, Stockton-on-Tees, Newport (Mon.), and Merthyr Tydfil. The greatest proportional mortality from measles occurred in Portsmouth, Southampton, West Bromwich, Coventry, Nottingham, Wigan, Sheffield, Middlesbrough, Stockton-on-Tees, Newport (Mon.), and Merthyr Tydfil; from scarlet fever in Blackburn and Merthyr Tydfil; from diphtheria in Ipswich and Tynemouth; from whooping-cough in Tottenham, West Ham, Hastings, Reading, and Hanley; and from diarrhœa in St. Helens. The mortality from "fever," showed no marked excess in any of the 76 towns. Two fatal cases of small-pox were registered in Southampton, but none in any other of the large towns. The number of small-pox patients remaining under treatment in the Metropolitan Asylums Hospitals, which had been 20, 20, and 21 on the three preceding Saturdays, had declined again to 15 on Saturday last, April 15th; no new cases were admitted during the week, the numbers having been three, two, and four in the three preceding weeks. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of last week was 2133, against 2035, 2032, and 2086 at the end of the three preceding weeks; 290 new cases were admitted during the week, against 274, 254, and 292 in the three preceding weeks. The deaths referred to pneumonia and diseases of the respiratory system in London, which had been 304, 273, and 308 in the three preceding weeks, declined again to 304 last week, but were nine in excess of the number in the corresponding period of last year. The causes of 52, or 1·1 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in London, Portsmouth, Bristol, Nottingham, Salford, Bradford, Leeds, Newcastle-upon-Tyne, and in 42 other smaller towns; the largest proportions of uncertified deaths were registered in Leicester, Liverpool, St. Helens, Rochdale, Barrow-in-Furness, Rotherham, Sunderland, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 18·3, 16·9, and 16·6 per 1000 in the three preceding weeks, rose again to 18·0 per 1000 during the week ending April 15th, and was 1·4 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 14·0 in Paisley and 15·9 in Dundee to 24·4 in Perth and 24·5 in Greenock. The 603 deaths in these towns included 36 which were referred to whooping-cough, 17 to measles, nine to diarrhœa, six to diphtheria, and one to scarlet fever, but not any to small-pox or to "fever." In all, 69 deaths resulted from these principal infectious diseases last week, against 59, 43, and 73 in the three preceding weeks. These 69 deaths were equal to an annual rate of 2·1 per 1000, which was 0·3 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 33, 20, and 28 in the three preceding weeks, rose again last week to 36, of which 26 occurred in Glasgow, four in Edinburgh, and two in Greenock. The deaths from measles, which had been six, five, and 13 in the three preceding weeks, further rose to 17 last week, and included 11 in Glasgow, two in Edinburgh, and two in Aberdeen. The fatal cases of diarrhœa, which had been eight, eight, and 20 in the three preceding weeks, fell again last week to nine, of which three were registered in Glasgow, two in Dundee, and two in Aberdeen. The deaths from diphtheria, which had been five in each of the two preceding weeks, increased to six last week, and included two in Glasgow and two in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had been 133, 105, and 119 in the three preceding weeks, further rose last week to 121, but were 31 below the number in the corresponding period of last year. The causes of 18, or nearly 3 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 22·4, 24·9, and 25·5 per 1000 in the three preceding weeks, declined again to 21·6 per 1000 during the week ending April 15th. During the past four weeks the death-rate has averaged 23·6 per 1000, the rates during the same period being 15·6 in London and 16·4 in Edinburgh. The 157 deaths of persons belonging to Dublin registered during the week under notice were 28 below the number in the preceding week and included eight which were referred to the principal infectious diseases, against seven, eight, and five in the three preceding weeks; of these, four resulted from measles, two from whooping-cough, one from scarlet fever, and one from "fever," but not any from small-pox, diphtheria, or diarrhœa. These eight deaths were equal to an annual rate of 1·1 per 1000, the death-rates last week from the principal infectious diseases being 1·8 in London and 1·2 in Edinburgh. The fatal cases of measles, which had been four, four, and none in the preceding weeks, rose again last week to four. The 157 deaths in Dublin last week included 19 of children under one year of age and 47 of persons aged 60 years and upwards; the deaths both of infants and of elderly persons showed a considerable decline from the respective numbers recorded in the preceding week. One inquest case and two deaths from violence were registered; and 58, or more than a third, of the deaths occurred in public institutions. The causes of seven, or more than 4 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Staff Surgeon G. A. S. Bell to the *Victory*, to be lent to the *Brilliant*, temporary.

The following have been promoted Surgeons: C. H. Rock to the rank of Fleet Surgeon, with seniority of May, 1903; H. H. Gill to the rank of Fleet Surgeon, with seniority of November, 1903; and A. T. Wysard to the rank of Fleet Surgeon, with seniority of May, 1904.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel W. Baker, on reversion from India, is appointed to the Eastern Command for duty. Major C. J. Holmes (retired pay) assumes medical charge of the Station Hospital and troops at Warrington, vice Lieutenant-Colonel C. W. Thiele. Major R. H. Penton joins at Portsmouth. Major A. Hosie is posted to the Eastern Command. The following officers in India have been appointed to the command of the station hospitals named: Captain J. A. Hartigan, Cherat; Major H. A. Cummins, C.M.G., Baragali; Major J. J. Russell, Kuldana; Major C. Dalton, Gharial; Major W. G. Beyts, Solon; Captain T. F. Ritchie, Khairagali; Captain H. Rogers, Changlagali; Captain J. H. Robinson, Kelabagh; Lieutenant P. Davidson, D.S.O., Ghoradaka and Kharspur; Captain J. Powell, Thobba; Lieutenant H. G. S. Webb, Upper Topa; and Lieutenant C. A. J. A. Balck, Lower Topa.

Major William Boog Leishman, Professor of Pathology, Royal Army Medical College, to be Brevet Lieutenant-Colonel, in recognition of his services and the distinction attained by him in original investigation and research (dated April 15th, 1905).

VOLUNTEER MEDICAL CORPS.

Surgeon-Lieutenant-Colonel W. Mitchell Roocroft, V.D., is granted the honorary rank of Surgeon-Colonel (dated March 18th, 1905).

THE MEDICAL JOURNAL OF THE ITALIAN NAVY.

The *Annali di Medicina Navale* enters upon its eleventh year with a double number of 240 pages, of which nearly one

half contains original contributions from naval medical officers, while the remainder consists of a periscope of cosmopolitan current medical literature. A nominal roll of the medical department of the Royal Italian Navy accompanies this number. It contains the names of 227 officers who rank as follows:—Major-General 1, Colonels 6, Lieutenant-Colonels 11, Majors 23, Captains 107, and Lieutenants 79. The names are also given of 67 medical officers belonging to the Reserve and of 13 apothecaries. Medical officers, it will be seen, are accorded military titles, but the same distinction is not conferred upon the *Farmacisti*.

Correspondence.

"Audi alteram partem."

DISAPPEARANCE OF AN APPARENTLY MALIGNANT TUMOUR OF THE THROAT.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of March 25th, p. 821, Mr. F. W. Joshua raises the following question: Can a malignant tumour—a well-marked cancer—disappear spontaneously? An answer to this question has already been given by Mr. D'Arcy Power in a paper read before the Harveian Society of London on March 2nd, 1899; both the paper and the discussion on it at the society were published immediately afterwards in THE LANCET, the former on March 4th (p. 583) and the latter on March 11th (p. 693). Mr. Power described a series of cases of disappearance of malignant tumours after laparotomy in apparently hopeless cases where owing to the extent of the damage, the size of the tumour, &c., no operation was performed. In some cases the diagnosis of malignant tumour was made microscopically from excised portions of the tumour.

In the issue of the *Correspondenzblatt für Schweizer Aerzte* for October, 1904, I published the following case under the title, "Disappearance of an Apparently Malignant Tumour of the Throat." The patient was a woman, aged 76 years, a very quiet, unassuming, reliable person, who consulted me on Jan. 5th, 1904, about a papillomatous tumour growing on the left side of the soft palate. She was not only old and infirm but she had degenerative changes in the arteries, a weak heart and had been suffering for many years from dyspepsia. The tumour slowly increased under simple treatment (gargles, mouth washes, tonics) and began to slough. A specialist for throat diseases who saw her in February confirmed my diagnosis of cancer. The patient declined the operative interference proposed by her two medical attendants. By March the tumour was of about the size of a small egg, had pushed the uvula over to the right side, and occluded the pharynx to such an extent that the patient was reduced to fluid nourishment. Codeine and morphine had to be given every night to alleviate the agonising pain which she suffered heroically without complaint. Thus a few hours' rest were insured. In March she insisted on operative interference. A surgeon who was called in considered the case past operation and there was swelling of the submaxillary glands on the left side. In order to insure proper feeding, per rectum if necessary, the patient went to a private hospital and remained a month under the charge and daily supervision of two surgeons. The case being pronounced hopeless she returned home on June 1st, 1904, to arrange her affairs. On June 2nd she suddenly felt better, had less obstruction in her throat, had the first painless night for four months, and has had no more pain since. On June 4th her husband and a hospital nurse discovered that the tumour had disappeared. The specialist who had seen her in January saw her again in July and confirmed the fact, so did I, and the hospital surgeon under whose charge she had been. In September I noted the following "status": throat normal, uvula in the median line, a tiny benignant-looking papillomatous tumour is left, and a grey line like a scar marks the seat of the former ugly ulcerated tumour. The patient takes her usual food again, gets about as usual, and has regained her former state of health. She attributed her case of healing to a direct answer to personal prayer.

I am, Sirs, yours faithfully,

Zürich, April 4th, 1905. THEODORE ZANGGER, M.D.

PUERPERAL SEPSIS AND THE CURETTE.

To the Editors of THE LANCET.

SIRS,—In the second portion of the paper by Mr. A. G. R. Foulerton and Dr. Victor Bonney on Puerperal Infections, published in THE LANCET of April 8th, p. 915, and April 15th, p. 992, there is a point which calls for some remark. After describing much valuable bacteriological work on the subject, they briefly discuss the treatment of the conditions and condemn curettage in the following sentence:—

> In the case of either a streptococcic or pneumococcic infection of the uterus, with or without secondary infection by other bacteria, this procedure would seem on the one hand to be incapable of doing any good, and on the other hand might be productive of most serious result by infecting the hitherto intact deeper tissues of the uterine wall.

This is misleading, as it suggests that those who advocate the active operative treatment of puerperal sepsis rely on the curette alone. Were this so, these strictures would be perhaps justified, though even then this condemnation seems to rest rather on bacteriological probabilities than on clinical experience.

But the essential point is that the curettage shall be followed by thorough disinfection of the raw surface, otherwise dissemination of infective matter might easily occur. I have myself had the best results from thorough removal of the endometrium with a sharp, light instrument (as distinguished from stirring up the surface with a heavy blunt one), followed by thorough rubbing with undiluted izal.

I am, Sirs, yours faithfully,

A. KNYVETT GORDON,

Medical Superintendent, Monsall Hospital; Lecturer on Infectious Diseases in the University of Manchester.

Manchester, April 15th, 1905.

THE MEDICAL INSPECTION OF SCHOOLS.

To the Editors of THE LANCET.

SIRS,—Certain developments are taking place in connexion with the medical inspection of elementary schools which the profession would do well to follow closely, for they affect at once the health of the community and the progress of medicine. Sir William Anson states that every local educational authority has power to appoint medical inspectors to every elementary school and the Government has recently appointed a committee to inquire into what is being done in this respect.

Already medical officers of health take much interest in the elementary schools in their districts. Under the Education Code the sanitary authority of a district, or any two members thereof acting on the advice of the medical officer of health, can require either the closure of the school or the exclusion of certain children. These powers are from time to time exercised. Further, one medical officer of health analysed the air in one school and as a result made certain recommendations as to ventilation, and we have another reporting that epidemics are mainly kept up by attendance at school and complaining that head teachers are not sufficiently careful to exclude children slightly ill or those coming from infected houses. Besides this, one educational authority has decided to appoint a medical officer at a commencing salary of £400 a year. Another has appointed the medical officer of health to be medical officer to itself. A third has evidently appointed a medical officer, for it has decided that he should meet parents at a certain school twice a week and at outlying schools once a week. Lastly, we have a conference on school hygiene recommending that every educational authority should have a medical adviser.

Now, to advise a committee is one thing, to inspect children a second, and to treat those found to be ill is a third. As to the first, the best adviser on questions of lighting and the prevention of myopia would be an ophthalmic surgeon, but he would not, if he could, advise on the prevention of epidemics or on matters of ventilation and drainage; therefore, it would seem better to appoint a consultative board. Of this the medical officer of health might be a member, but he could not delegate to others his duties and powers as to the compulsory closure of schools. With respect to the medical inspection of schools it would seem best to appoint a separate practitioner to each school, who should attend daily at a fixed time and at other times when necessary. A medical officer to an authority with thousands of children in scores of schools could only visit each school occasionally, even

though he gave the whole of his time to his duties. What he would probably do is to try to train the schoolmasters and attendance officers to diagnose infectious cases and keep medical records, but these are essentially medical duties and could only be done by schoolmasters at the expense of their proper work—i.e., teaching. Two objections can be made to this proposal: first, that the medical school inspectors being allowed to practise would be brought into unequal competition with their professional brethren, but divisional surgeons of police practise and no one proposes they should be debarred from so doing; secondly, it might be said that in the poorer parts of large towns the practitioners have been brought so low by the competition of hospitals and other causes that they would be unfit for these duties; even if this be admitted, which it is not, all that is necessary would be to require the holder of the post to reside within a mile of his school and to be on the telephone.

Many educationists will not be content with medical inspection but will want to go on to treat the children at the expense of the rates; it is to be feared, too, that some of them will care little whether the law authorises this or not but proceed to levy the higher rate, leaving anyone to stop them who can; if they do this they will find they have to appoint a regular medical staff and to maintain a children's hospital. The medical profession can, of course, take no part in proceedings of doubtful legality. Sir William Anson says there is grave doubt as to whether the Education Board has power to compel local authorities to appoint medical inspectors; there may be grave doubts about other matters; how far, for instance, medical inspection may be carried and by what action, if any, it may be followed. The Education Acts say the committees have power to appoint necessary officers and to assign to them their duties; everything then depends on what is considered necessary. The Education Code knows nothing of medical inspectors of schools; it has a schedule on pensions for teachers but nothing about pensions for medical officers; indeed, the only medical officer the code seems ever to have heard of is the medical officer of health.

But another question arises, What will be the effect of all this officialism on the character of the profession and the progress of medicine? It is stated that from some cause the scientific output of existing State hospitals is disproportionate to the opportunities enjoyed; it is noteworthy, too, that architects are complaining greatly of the effects of municipalisation on their art. "It does not produce economic work; it cannot produce artistic work, and it is subversive of the interests of the individual from whom the new thing and the original thing is invariably derived."

I am, Sirs, yours faithfully,

April 14th, 1905. J. S.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Housing Question.

THE housing committee's scheme for dealing with the Bordesley Green site was presented to the council on April 4th. It was, however, received with so much opposition that it was withdrawn. There were two principal lines of objection. One was that the plans were unsatisfactory—the rooms were too small and the sanitary arrangements were defective; the other was that the terms of the contractor who covenanted to build on the site were not financially good and emphasis was laid on the fact that no guarantee was given that the rents would remain fixed. The supporters of the scheme urged that the medical officer of health had approved the plans, and that no guarantee could be given that the rents would not be raised unless the corporation guaranteed that the rates would not be raised. As regards the financial aspect they agreed that no doubt more could be obtained for the land if they allowed better houses to be built but that the land was purchased for the provision of cheap healthy houses and not as a land speculation. The feeling of the majority in the council seemed to be that if they waited a little longer until the roads—in process of making—were completed and threw the site open to competition better houses and a better price might both be obtained. On withdrawing the scheme the chairman said he did so on the understanding that the matter should be brought up again on a further report as soon as possible. Closing orders in respect of a considerable number of houses have been made during the last few days.

Reports of Charities.

From the annual report of the Birmingham Lying-in Charity it is seen that, like the other local charitable institutions, it stands in urgent need of increased subscriptions. The medical portion of the report was most satisfactory, for although no less than 1199 children were born in the cases attended during the year there was no maternal mortality. Land has been purchased for the erection of a central home in connexion with the charity and £2000 have been subscribed towards the £6000 required for its completion. So unsatisfactory is the financial position of the Birmingham Homœopathic Hospital as disclosed in the annual report that the curtailment of the in-patient department is regarded as inevitable.

Care of Epileptics and Feeble-minded.

The Local Government Board has at last approved the scheme under which the Birmingham, Aston, and King's Norton boards of guardians are jointly responsible for the poor epileptics and feeble-minded persons in their districts. The new body, brought into existence by the Government Order, is the first of its kind in the country and is known as the Birmingham, Aston, and King's Norton Poor-law Establishment Committee. A building for the accommodation of 210 inmates is about to be erected, of which number Birmingham will contribute 110 and Aston and King's Norton 50 each. The expenditure will be divided in accordance with this proportion. In addition to being properly attended instruction will be given to the inmates in order that they may be as comfortable and at the same time as useful as possible. At the last meeting of the Smethwick education committee a letter was read from the Board of Education sanctioning the proposal to erect a special school for defective and crippled children.

Birmingham and Tuberculosis.

The report of the health committee for the past year was presented at the last meeting of the city council. From it I gather that tuberculosis was accountable for no less than 1071 deaths In order to lower if possible the high death-rate from this cause a system of voluntary notification has been instituted and a special inspector has been lately appointed to visit all houses in which death has occurred from this disease and to see that disinfection is thoroughly carried out. An amendment was moved and seconded that the health committee should take into consideration the provision of sanatoriums for the reception of tuberculous patients and this was finally adopted as a rider to the report, although the chairman of the health committee craved time in order to see the effect of the measures which it has just lately adopted.

The Midwives Act.

Under the Midwives Act of 1902, which has just come into operation, it is expected that the total number of registered midwives in the city will exceed 200.

Health of the City and District.

At the close of last week there were three patients in the isolation hospital suffering from small-pox, as compared with four at the close of the previous week. The annual reports of the medical officers of health of West Bromwich and Erdington have just been issued. The latter place, which is one of Birmingham's healthiest suburbs, had a death-rate for the year of 10·8 per 1000. West Bromwich, which is situated in a less salubrious district, had a death-rate of 15·9 per 1000. Both death-rates were well below the average for the last ten years.

April 17th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Health Students' Association: Have Sanatoriums Proved Unsuccessful?

UNDER the auspices of the Liverpool Health Students' Association an interesting address was delivered by Dr. J. E. Nevins, physician to the Liverpool Workhouse Hospital, on the subject of the Prevention of Consumption, with special reference to Sanatoria. Dr. Nevins quoted various opinions, including that of Professor Rudolf Virchow, director of the Pathological Institute, Berlin, who had remarked: "It is

therefore to be hoped that the public will recognise that the study of the cause and prevention of tuberculosis is a branch which is more likely to be of ultimate benefit to the community than the establishment of open-air sanatoria." Again, Professor Maraghiano said at the Madrid congress that "sanatoria would never diminish the number of cases of tuberculosis; they must only be looked on as quarantine hospitals, which were useless without general hygienic measures." The sanatorium movement in England might be said to date from Dec. 20th, 1898, when the King, then the Prince of Wales, presided at the meeting at Marlborough House at which Sir William H. Broadbent said that sanatoriums "aim not only at prevention but cure." They had also the statements of Mr. T. B. Sellors of Balham who said of the consumptive artisan: "Here we have a man on whom others depend bound to die in a year or two if not treated by the open-air system and that is impossible"; while Dr. G. A. Heron, senior physician to the City of London Hospital for Diseases of the Chest, said: "Treatment as a hospital out-patient was a farce, a mockery, a great waste of money, and a public scandal." Was out-patient treatment a fraud and a scandal? asked Dr. Nevins. Before sanatoriums were introduced the death-rate of phthisis had fallen in 50 years by 50 per cent. and it did not appear from statistics that before the days of sanatoriums people were bound to die in a year or two. There were three essentials in the sanatorium treatment—constant fresh air, abundant feeding, and regulated rest and exercise. There was nothing new here. Sanatorium treatment really meant putting patients in ideal conditions of life and there was no reason why they should think that fresh air was going to work miracles any more than in years past. What had been the results? To speak broadly, they had heard that the sanatorium at the beginning was held to be for cure. In the early days the reports issued stated that so many patients were cured; later the term used in the reports was "disease arrested," and a year or two later a new term was used, "disease apparently arrested." The speeches made at the annual meeting of the National Association for the Prevention of Consumption seemed to be disappointing. In fact they admitted that sanatoriums had not been a success up to the present. The speakers, however, did not say that the sanatoriums were a failure but that they had became so owing to the people sent there by medical men. The results of the present-day treatment must be taken in the broadest sense, because it was almost impossible to compare figures relating to sanatorium treatment, inasmuch as they differed in the class of patients treated. The figures he was about to quote were only put forward just as straws showing the direction of the current. In five English sanatoriums one had 23 per cent. of the patients dead in less than four years, another had 25 per cent., another 30 per cent., another 32 per cent., and another 38 per cent.; in the aggregate of 477 patients 128 died in four years or less, giving a percentage of deaths of 26·7. In Germany the results were much the same. With regard to one hospital where hopeless cases were excluded from the percentage of deaths the results showed that 23 per cent. of the patients died within four years. One very important point to be remembered was that in the early stages—and those were the cases desired by the sanatoriums—phthisis often cured itself, where the individuals had the resisting power. So far as the Heswall Sanatorium, with which he was connected, was concerned the percentage of deaths for two years was 23·6. With reference to pre-sanatorium results Dr. C. T. Williams gave details of the treatment of 1000 patients. Of those only 48 died in four years, giving a percentage of 4·8, but those were cases in the highest class of society. Dr. J. E. Pollock, physician to the Brompton Hospital, had analysed his cases and of 3566 hospital out-patients whom he was able to trace only 129 had died in two and a half years, giving a percentage of 3·5. Dr. Hammer of Heidelberg gave statistics which showed that the figures in reference to out-patients were considerably better than those for sanatoriums. He did not go so far as to say that the sanatorium was a failure, although he had his own opinion on that point, but he wished to impress on his hearers that so far it had not proved itself a success having regard to the expense. He had picked the most suitable cases from the Liverpool Parish Infirmary but they could not in parish life provide the early cases. In fact, in parish life, the early cases were not often seen and those coming under observation were not always willing to be removed to the sanatorium. Dr. Nevins summed up his remarks by saying that the sanatorium had done good work in teaching the gospel of fresh air but as a curative agent it seemed to him that it had not proved itself a success.

The Mitchell Banks Testimonial.

It is proposed to close the fund for the town's memorial to the late Sir William M. Banks on April 30th. The Lord Mayor has appealed for further donations.

The Liverpool Hospital for Consumption.

The annual meeting of the supporters of the Liverpool Hospital for Consumption and Diseases of the Chest, including that of the sanatorium at Kingswood, Delamere Forest, was held at the town-hall, the Lord Mayor presiding. The Lord Mayor, in moving the adoption of the report, regretted that the institution should be in such an unsatisfactory financial position. The past year had ended with debit balances in maintenance and capital accounts, of respectively £560 and £1542. The debit balance in capital account resulted from payments to account of the new hospital in Mount Pleasant, the deficit in respect of which, and the extension undertaken in connexion with the out-patient department, was estimated at £5000. The new hospital was opened for the admission of patients on Jan. 1st. The Lord Mayor made an urgent appeal to the committee and all present to advocate, wherever possible, the value of fresh air. The number of patients treated in the out-patient department last year was 1904. At the Kingswood Sanatorium at Delamere Forest 175 patients were treated last year. The results, as in previous years, were satisfactory. 71·1 per cent. had left in good health, not "cured" in the popular meaning of the term, but with the disease either quite or very greatly arrested and their prospects of life and wage-earning assured or greatly improved. The hospital recently suffered a heavy loss in the death of Lady Willox, who, in conjunction with Mr. W. P. Hartley, built the sanatorium at Delamere Forest and the annexe to the hospital which has recently been rebuilt in Mount Pleasant, Liverpool.

April 18th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Sanitary Administration in the Wrexham Rural District.

FOR some time after the passing of the Public Health Act, 1875, which made it incumbent upon sanitary authorities to appoint medical officers of health, it was the custom to elect to that office the Poor-law medical officers, with the result that in many districts there were several medical officers of health acting for one authority. The Local Government Board has for a long time tried to remedy this unsatisfactory condition, but in Wales there still remain eight districts with two medical officers of health, two with three, and one with no less than four. The rural district of Wrexham, which at the last census had a population of 55,198 and an area of 58,932 acres, is one of the districts with two officers. In 1903 one of them died and the Local Government Board refused to sanction a continuance of the arrangement until a report upon the sanitary administration of the district had been made by one of its inspectors. That report, which has been written by Dr. L. W. Darra Mair, has now been issued. It contains the very serious charge against the district council of having failed in its duty as a health authority as shown by the inadequate methods of administration and the many nuisances and unwholesome conditions directly traceable to those methods. Dr. Mair advises frequent inspection of the district, the provision in populous places of drainage schemes, the periodical inspection of water-supplies, and the provision of a small-pox hospital. He suggests also the appointment of one medical officer of health for the rural district and for the borough of Wrexham, and that such a salary should be offered as would enable the officer appointed to devote his whole time to public health work. The population of the borough in 1901 was 14,965 and the combined population is now about 75,000.

Porthcawl Rest.

The only convalescent home in South Wales is the "Rest" at Porthcawl on the Glamorganshire coast. The annual report of the institution which was presented to the meeting of subscribers on April 12th is a record of very successful management and of the accomplishment of much good work.

Altogether 1095 patients were admitted during the year and the expenditure amounted to £1815. There was a balance on the year's working of £456, but there is still a debt of £1376 to defray the cost of extensions which were made a few years ago. The home is usually closed during the winter months but during the past winter it was kept open for the reception of children from the Cardiff Infirmary and the experiment was sufficiently successful to warrant a repetition next winter when children will also be sent from the Newport Hospital and a few adults will be admitted from these institutions.

Cardiff Infirmary.

Dr. Thomas Wallace has been appointed honorary consulting surgeon to the Cardiff Infirmary upon the expiration of his term of office as honorary surgeon. Dr. Wallace has been connected with the infirmary for nearly 27 years.

Extension of the Borough of Cardiff.

The corporation of Cardiff is again considering the question of the extension of the borough boundaries. The area of the borough is at present 6373 acres, or about three times the size it was at the middle of the nineteenth century. On the Llandaff side and on the Roath side of the town a large population is gathered outside the borough and difficulties in connexion with sewerage and other matters have arisen which can be most successfully overcome by including the districts in question in the borough.

Brixham Health Report.

Mr. G. Blacker Elliott, the medical officer of health of the Brixham urban district, reports a birth-rate in the town during 1904 of 26·6 per 1000 and a death-rate of 14·6 per 1000. The zymotic death-rate was 2·2 per 1000. Mr. Elliott very properly urges the district council to provide an isolation hospital and a steam disinfector, with neither of which can a popular watering-place afford to dispense.

Conference on Vagrancy at Hereford.

At a conference of members of the Poor-law unions in the county of Hereford, held on April 11th, a decision was come to which should have the effect of discovering among the occupants of the tramp wards the men who are desirous of working if work can be found for them. Notice is to be given to the employers of labour in the unions concerned that upon application by them the workhouse master will send them when possible a man who may appear suitable for the work required of him. It was also decided by the conference, which was presided over by Sir John Cotterill, the lord lieutenant of the county, that each union should adopt uniform treatment in respect to those who applied for admission to the tramp wards. The necessity for taking some steps in the matter is emphasised by the fact that in the Hereford union, which has a population of 34,000, or more than one-third that of the whole county, 8633 tramps came to the workhouse during the past year, compared with 3385 in 1896, although the population of the union has not appreciably increased within the two periods.

The Administration of the Midwives Act in Herefordshire.

The Herefordshire county council has delegated its powers under the Midwives Act to a committee consisting of five members of the county council, Dr. Paul M. Chapman, Mr. Edgar F. Morris, and two ladies, one of whom is the matron of the Herefordshire General Hospital. The committee has adopted the unusual course of recommending the appointment of a person—presumably a woman—who shall act in the dual capacity of a supervisor of midwives in the county and superintendent of the nurses employed by the county nursing association. There is no county medical officer of health in Herefordshire.

Hereford County Asylum.

The number of patients in the Hereford County and City Asylum is reported to be 528, which number includes 50 from the borough of Cardiff. The charge for the maintenance of pauper patients chargeable to unions within the county has been reduced to 8*s.* 9*d.* per week per patient. The salary of the medical superintendent, Mr. C. S. Morrison, has been increased from £500 to £600 per annum.

Taunton Isolation Hospital.

At the meeting of the Taunton town council held on April 11th the isolation hospital committee reported that it had decided to make a charge to patients or parents of patients who were admitted into the hospital and who might be considered in a position to pay for treatment. The amount claimed would be at the rate of one guinea per week for an adult and half a guinea for a child. A considerable discussion arose over the report, the opinion being expressed that it was unwise to make any charge to patients, as in other towns people were encouraged to send cases of infectious diseases to the isolation hospitals and in other boroughs such fees had been abolished. Eventually it was decided to refer the matter to the committee.

April 17th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Candidature of Dr. Leonard Kidd as a Direct Representative.

AT a meeting of the Ulster Medical Society held on April 13th, a letter having been read from Dr. Leonard Kidd with reference to the Direct Representation for Ireland on the General Medical Council, it was decided, after a long discussion, to take no action at present in the matter. The question will come up again for discussion as a number of members of the society have signed a requisition for a special meeting to discuss the whole question of the representation of Ireland on the General Medical Council.

The Foreshore Nuisance on Belfast Lough.

At a meeting of the Castlereagh district council, held on April 14th, a letter was read from the Local Government Board stating that it had decided to make a provisional order forming a united district for the purpose of abating the nuisance on Belfast Lough of which complaint had been so bitterly made. A joint board, consisting of the corporation of Belfast, the Castlereagh rural district council, and the Holywood urban district council, is to be constituted for the united district and the expenses incurred in purifying the foreshore are to be defrayed by these bodies in the proportion of Belfast 85 per cent. and Castlereagh and Holywood each 7½ per cent.

The Drink Bill in Belfast.

From the figures published in Dr. Dawson Burns's annual report for last year it would appear that in Belfast, with an estimated population of 358,693, the expenditure on drink was in 1904 £1,126,893, a sum almost equalling its valuation. This sum is only £30,000 short of the total amount spent in the whole of Ireland on poor relief and medical charities and £47,000 less than the entire sum spent on primary education. This amount would pay the whole of the sum spent by the public health committee and leave a balance to discharge the liability in respect of the free libraries and technical education. Dublin spent in drink in 1904 £1,190,897.

Down District Asylum.

Mr. M. J. Nolan, resident medical superintendent of Down District Asylum, was on April 15th, in recognition of his admirable administrative capacity and of his services in promoting in every department the improvement and reorganisation of the institution, made the recipient of a congratulatory address and gold watch, while his wife was presented with a silver salver. Lord de Ros, K.P., K.C.V.O. (chairman of the asylum board of management), who presided, bore his own testimony to the improvement which had taken place in every department of the institution under Mr. Nolan's régime, while the Right Hon. Thomas Andrews, D.L. (chairman of the Down county council), laid stress on the fact that in connexion with all appointments Mr. Nolan excluded all political and sectarian considerations and invariably recommended the best person for the position.

April 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Amendments to the Workmen's Compensation Act.

THE *Journal Officiel* of April 2nd has just published various clauses amending the law of 1898 which deals with accidents to workmen. The following are the principal clauses affecting the medical profession. The employer is liable for all medical fees, for the cost of drugs and appliances, and for the funeral expenses, but these last are not to exceed 100 francs. The injured workman has the right to choose his

medical man and his druggist but in this case the employer is only liable for medical fees and for the cost of drugs, &c., up to an amount fixed by the *juge de paix* of the canton in which the accident took place. This amount is to be settled by a tariff issued by the Minister of Commerce in accordance with the report of a special committee comprising representatives of both medical men and of druggists. In every case the employer alone is liable for the hospital expenses, which, however, all told must not exceed 4 francs per diem in Paris and 3 francs 50 centimes everywhere else. Medical men, druggists, and hospital authorities can sue the employer directly. While the injured workman is being treated the employer can nominate to the *juge de paix* a medical man who shall examine into the condition of the sufferer, and this nomination, duly visé'd by the *juge de paix*, shall give to the said medical man a weekly right of entry to the injured man in the presence of his own medical attendant, who shall be notified two days previously by registered letter. If the injured man shall raise any objections to this visit the payment of the daily indemnity shall be suspended by order of the *juge de paix* who shall notify (*convoquera*) the injured man by registered letter. If the medical man shall certify that the injured man is fit to go back to work and the patient shall deny this the employer may, in a case of temporary incapacity, demand from the *juge de paix* an expert medical inquiry to be held within five days' time.

The Action of the X Rays upon Non-suppurating Tuberculous Glands.

At the meeting of the Academy of Sciences held on March 27th M. Bouchard read for M. Bergonié a report in which the latter stated that some six months ago he had treated four patients who were suffering from non-suppurating tuberculous glands by the x rays. From the results obtained he had come to the following conclusions. In cases of multiple tuberculous glands the action of the x rays is markedly good. All the glands treated become smaller but they rarely disappear altogether. Glands in the neighbourhood of those affected, which are not treated and are protected from the influence of the rays, are in no way altered. The most efficacious radiations appear to be those which, either owing to their amount or their quality, produce a marked inflammation of the skin. Finally, the rapid decrease in the size of the glands does not, according to the observations made, affect the general health of the patients.

The Local Action of Antidiphtheritic Serum.

At a recent meeting of the Hospitals Medical Society M. Dopter mentioned that he had employed Martin's serum (*serum antidiphtérique antimicrobien*) in the form of pastilles, with a view to hasten the disappearance of the bacillus of Löffler from the throats of diphtheritic patients. M. Dopter had found that under the local action of the serum the bacilli disappeared in, at the most, five days, at least exceptions to this were very rare and relapses hardly ever occurred. The patients were given 12 pastilles per diem to suck, one to be taken every hour, and any gargling or washing out the mouth which could dilute the serum was forbidden. For bacilli growing in the nasal fossæ the serum was dried and used in the form of coarse snuff (*prises*), but results were less satisfactory than as regards the throat, where the pastilles appeared to prevent the onset of paralysis of the soft palate. By their use the duration of the period of isolation was shortened. M. Sicard, who spoke next, agreed with M. Dopter from his own experience. M. Lermoyez argued that the failure of the serum in the nasal fossæ was due to a faulty method of application. The coarse snuff could only act upon the very narrow passage taken by the inspired current of air. It would have been better to powder the dried serum very finely, for used in this manner it could be deposited over a larger surface than when used in the form of coarse snuff.

The Part played by Spray in the Dissemination of Infectious Diseases.

M. Busquet, *médecin-major*, has been studying the part which the spray, thrown up by a stormy sea, can play in the transmission of disease. Such spray can be carried inland at least for 50 metres and it also is carried high into the air so that it will fill with mist houses which are close to the water's edge. M. Busquet ascertained that on the sea front of Bab-el-Oued, near Algiers, at which place numerous sewers discharge, given a strong wind with thick spray, the usual number of germs in the air is trebled. With a gale blowing the proportion of germs is increased in a still higher ratio and virulent bacilli coli have been found. These researches show the necessity for the protection of shores from pollution by sewage.

The Emile Zola Foundation.

Madame Emile Zola has just made over to the Assistance Publique her property of Medan, which, under the name of the Emile Zola Foundation, will be carried on as a convalescent home for members of the female staff of the Assistance. Madame Zola reserves to herself the island and the chalet thereon. M. Mesureur, the director of the Assistance Publique, has intimated that he will do all in his power to get the superior council of the Assistance and the municipal council to accept the gift. He suggests that the public should be allowed to visit the house. It is expected that the municipal council will at an early date signify its acceptance of the gift.

April 17th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Number of Medical Students in Austria.

THE following figures are given in the half-yearly report of the Royal and Imperial Ministry for Education, under the supervision of which the universities, as public institutions, are placed. According to this report there were in the winter half-year 1904–05 at the University of Vienna 1490 male and 37 female matriculated students of medicine; in Innsbruck, 160 (males only); in Graz, which is the second German university, 300 males and five females; in Prague, 210 males and seven females; in Lemberg, 98 males and 10 females; in Cracow, 126 males and 36 females; and the Czech University in Prague had 386 male and 15 female students, making a total of 2770 males and 110 females, or a falling off by 7 per cent. when compared with the figures for the last half year 1904.

A New Institution for the Treatment of Lupus by Finsen's Method.

By the munificence of members of the Royal and Imperial family the nucleus of a fund has been formed for the erection of a special building for the benefit of sufferers from lupus vulgaris. Other gifts and donations having been added to that sum Professor Lang, the director of the dermatological clinic at the General Hospital, took the matter in hand and now a two-storeyed house has been opened with all apparatus necessary for the treatment. X ray work and operations can be performed in the house, besides the special Finsen treatment for which four arc lamps are available. The fees charged from those who are not entirely destitute of means amount to about 1*s.* 6*d.* per hour of treatment under light, whilst operations are free. 15 beds are also at the disposal of the director of the institution. It is worth while mentioning that several English physicians have been, or are, working there under the direct supervision of Professor Lang who is regarded as an authority on matters concerning the treatment of lupus.

Small-pox.

A case of small-pox has been notified to the sanitary authorities of Vienna. This once dreaded disease has been so extremely rare since 1870, when compulsory vaccination was introduced into the Austrian empire, that amongst the younger generation of medical men there is hardly anyone who has had the opportunity of seeing it. Only officers of the Army Medical Corps now and then see a case in the southern provinces, where the unintelligent population omit to have the children vaccinated. The present case was imported from France. Stringent prophylactic measures were, of course, adopted at once and the result was that there has been no extension of the disease. The man died after seven days' illness from degeneratio cordis. The effect of vaccination is well shown in the returns of the Registrar-General. In the whole empire there occurred during the five years 1899–1904 not more than 92 cases, mostly imported from abroad, with 41 fatal results, whilst during the similar period 1865–70 there were 5020 cases with a mortality of 22 per cent. It must be remembered that epidemics were not rare then.

The Treatment of Tuberculosis Laryngis by Sunlight.

In a paper read before the Medical Society of Vienna, Dr. Sorejo, director of the open-air sanatorium Alland,

which is the largest institution of its kind in Austria, described his method of treating tuberculosis laryngis. The patient, sitting in front of a large ordinary mirror which reflects the sun's rays into his or her mouth, inserts a laryngoscopic mirror in the usual way into the mouth until the glottis becomes visible in the large mirror. Then the rays are sure to fall on the vocal cords. After some practice the patients are able to spend from 40 to 60 minutes in this way, changing their position according to that of the sun. The results, which were demonstrated on 14 patients, were so remarkable as to induce several eminent physicians to give the method a trial in their clinics. It is absolutely necessary to employ parallel rays, which seem to have beneficial chemical effects on granulations. Thus ulcers have disappeared in three cases, tuberculous infiltrations of the epiglottis and vocal cords have subsided in five cases, and a general improvement has followed in all cases. The experiments are now conducted in several hospitals. The only drawback is the uncertainty of sunshine in winter time.

Double Wound of the Axillary Artery.

Dr. Weiss showed at the last meeting of the Clinical Society a man who had been stabbed in the left shoulder. After a copious hæmorrhage he was taken to a hospital where he was attended to. A prominence under the left deltoid muscle was attributed to a hæmatoma, and the diagnosis of a wound of the arteria circumflexa humeri having been made treatment was effected accordingly. But before the patient was discharged to attend as an out-patient he suddenly lost a quantity of blood from under the dressings, and when he was put under ether the bleeding had to be controlled by compression. It was then found that the axillary artery had been nearly divided by the stab and about two inches higher up another longitudinal wound of the vessel was discovered. Both ends of the artery were secured, the thrombosis being very slight in spite of the length of time that had elapsed, and the patient recovered completely. At the present time (five weeks after the operation) the left radial pulse is absent and the left hand is somewhat cyanosed and colder than the right. The arm can be used as easily as before.

Epidemic Cerebro-spinal Meningitis.

In the eastern parts of Austria an outbreak of cerebro-spinal meningitis has caused great alarm amongst the population. The disease is travelling westwards, one case having been noticed in Vienna. The specific diplococcus, discovered by Fränkel and Weichselbaum, was present in all the cases examined hitherto, especially in the discharge from the nose. Lumbar puncture has not proved very beneficial and the mortality amounts to more than 50 per cent. The neighbouring countries of German Silesia, Bohemia, and Russian Poland are suffering from similar epidemics, which are most likely due to the same source of infection. Prophylactic measures have been enforced throughout the affected districts, especially at railway stations and factories, where the contagion is most liable to be disseminated.

April 17th.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The King Institute of Preventive Medicine at Madras.

THE King Institute of Preventive Medicine at Guindy, a suburb of Madras, has been formally opened. It is named after Lieutenant-Colonel W. G. King, the sanitary commissioner, to whose unremitting efforts for many years the establishment is due. Its origin was brought about by the possible dangers of human lymph in vaccination and the determination of the Government to employ nothing but animal lymph. As bovine lymph is exceedingly sensitive to the heat of the climate it was necessary to render it portable and Lieutenant-Colonel King, who was formerly inspector of vaccination, discovered that animal lymph could be effectively preserved in lanoline. A single and central vaccine institute to serve the needs of the whole Presidency thus came to be required and was sanctioned in 1899. The desirability of having a bacteriological laboratory attached was obvious and this second section was sanctioned in 1902. Further, as it was not advisable for Madras to be entirely dependent on other institutes, a serum section was added in 1903. The Pasteur Institute for Southern India will not form part of the King Institute, as a cooler climate than that of Madras city is considered necessary, and the Pasteur Institute will be established at Coonoor. Without this, however, the King Institute is a very comprehensive undertaking. The supply of sufficient lymph for 150,000 persons every month constitutes probably the largest output in the world. Formerly inoculated animals were driven from village to village and some attempt was made by unskilled persons to preserve the vaccine at petty depôts. The members of the vaccination department will be trained at this institute. The special laboratory at the disposal of the officers of the Indian Medical Service and private practitioners will afford opportunities for research. The bacteriological section examines specimens and issues reports on them and has so far evidently proved that it was wanted, judging from the demands made upon it. The occasion of the opening of the institute was taken advantage of to construct a temporary sanitary and hygienic exhibition but the building itself illustrates many useful sanitary lessons and the underground drainage and a native water latrine are particularly worthy of attention. When in complete working order the King Institute will be the one central place for instruction. Numerous courses of lectures will be arranged and candidates for posts of sanitary inspectors will here get their training.

The High Plague Mortality throughout India.

The plague mortality throughout India is just now at its annual maxima. For the week ending March 11th no less than 45,541 deaths were recorded and for the week ending March 18th 42,088 deaths were reported. The principal figures are: United Provinces, 19,726 deaths, as against 18,938 for the previous week; the Punjab 10,592, as against 11,661; Bengal 7219, as against 7928; and Bombay districts 3224, as against 2656. In both the cities of Calcutta and Bombay the disease is raging virulently. At Rangoon the disease is not only increasing but is spreading to other parts. Plague has broken out on the North-West frontier among the Baluchi tribes and one of the most sensible speeches ever made about plague was delivered in the vernacular to the tribal chiefs. "In order to avoid plague and keep it away from yourselves, your family, and dependents five things are necessary: Firstly, keep yourselves and your houses clean; secondly, avoid going to infected places or receiving persons or things from infected places; thirdly, when plague breaks out or rats begin to die in your house or village go and live in the open; fourthly, do not return to your houses until they have been cleaned and disinfected either by disinfecting medicine or by heating; and fifthly, when plague comes near you get yourselves inoculated."

An X Ray Institute at Dehra Dun.

The Government of India has decided, subject to the sanction of the Secretary of State, to establish an institute at Dehra Dun for use as a centre for the instruction of classes of medical officers and subordinates in the management of x ray apparatus and as a depôt for its storage and repair. The institute will be for the benefit of the community at large as well as for the army.

Nursing Difficulties at the Calcutta Hospitals.

The difficulty of adequate nursing at the hospitals seems to crop up periodically in Calcutta just as it does in Bombay. In the annual report of the Calcutta Institution just published, not only is the staff of nurses at the various hospitals in the city complained of as insufficient but the subscriptions received from the public, and especially from the native population, are said to be very deficient. About 120 nurses are supported by the institution, distributed among the five hospitals. The Government promised to increase its subsidy to Rs. 50,000 if the collections became equal to this amount. Unfortunately they have not. Hospital Sunday in Calcutta only realised about Rs. 5000 (less than £340). The Indian community seem very slow to acknowledge and to recognise the benefits conferred on their fellow countrymen, judging from the very moderate financial support which they contribute. The nursing at the three larger hospitals is superintended by the Clewer Sisters, whose services are gratefully acknowledged by the committee. More nurses are wanted at the Medical College Hospital to carry out the work efficiently but the committee needs further support, especially from the Indian community, before it can see its way to increase the staff. The accommodation for the nursing staff is also quite inadequate. The total expenditure of the institution was Rs.112,560 and there was a loss on working of Rs.2627. There is a provident fund to which the nurses contribute and also a pension fund, both very useful institutions.

The whole question of the nursing at the Calcutta hospitals requires reconsideration.

March 31st.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Protection of Infant Life and Milk-supply.

ONE possible effect of legislation regulating the hours of factory and other employés is an interference with the ordinary delivery of milk. The Women's Liberal League of New South Wales has carried the following motion:—

That the omission of any afternoon delivery would, under existing conditions, injuriously affect infants and the council therefore trusts that Parliament will not sanction any alteration in the present law which would permit non-delivery of milk on certain afternoons.

In a special report to the Sydney Benevolent Society Board Dr. T. Dixson insists on the necessity of a good milk-supply for the infants under its care. The present supply has been found of good quality and fairly uniform in fat contents and it has been possible to keep it at a fairly regular temperature of 40° or 41° F. He recommends the establishment of milk laboratories of the Walker-Gordon type which, in his opinion, would materially help in saving infant life.

Teeth of Australian Children.

The New South Wales Dental Association has arranged with the Education Department with regard to examining the teeth of the children attending the State schools. After examination the children are supplied with a card stating the number of teeth requiring attention. If the parents cannot pay for the necessary work the dental hospital will do it. The children at the Woolloomooloo school were recently tested to the number of 200. The results were fairly satisfactory and there was not nearly so much decay as had been supposed. The girls' teeth were worse than the boys' and showed more evidences of neglect and failure to keep them clean.

Prevention and Treatment of Consumption.

Last October the Sydney City Council passed a code of by-laws dealing with the compulsory notification of consumption. These have now been gazetted and have become operative. The city health officer has issued two circulars, one to householders and the other to medical men, with reference to the by-laws and the prevention and cure of consumption generally. The circular to the profession states that:—

Medical practitioners notifying cases of pulmonary consumption are invited to state whether they wish the premises occupied by the patient to be visited by the city health officer or otherwise. If otherwise, the expression of the wish will be respected, but in such cases the medical practitioner should warn the occupier of the premises in which the person notified resides that any change of residence by the patient must be forthwith notified to the city health officer on pain of a penalty of not more than £10, which is incurred by every householder who fails to so notify such removal on the part of a patient. If the notifying medical practitioner wishes the premises to be visited by the city health officer or if he fails to express a wish in the contrary sense the city health officer will, as soon as possible after the receipt of the notification, visit the premises occupied by the patient and make inquiries as to the precautions being adopted against the spread of infection, and will issue to the patient's friends what advice he may think desirable on the best means of checking the spread of infection. In all cases the utmost care will be taken to avoid alarming unnecessarily the friends of patients and to impress on them the certainty that by the employment of proper precautions the danger of infection can be reduced to a minimum. In all cases coming to the knowledge of the city health officer in which death or change of residence has caused the removal from premises within the city of a consumptive person, the premises will be disinfected by the staff of the city health officer.

Dr. Philip Sydney Jones of Sydney recently gave an address to the railway and tramway employés on the prevention and cure of consumption, in which he advocated the isolation of every consumptive. He estimated that 16,000 persons in Australasia suffered from the disease. The sanatorium for consumptives at Macedon, Victoria, is very inadequate to the demands on its accommodation, and owing to the generosity of an anonymous donor is to be added to. The road to the new building was formally opened by the governor last week. Dr. Duncan Talner, in speaking at the opening, said that the success of the institution was unsurpassed by any of its kind in the world.

Possible Contamination of the Water-supply of Sydney.

A new dam is in course of construction at the Cataract River in connexion with the Sydney water-supply. The workmen are camped within the catchment area and within a few minutes' walk of their work. Dr. E. S. Stokes, the recently appointed medical officer of the Sydney Water and Sewerage Board, has made a report to the board, condemning the site and recommending the removal of the camp to a site off the catchment area. He says that heavy rainfall would be certain to cause more or less contamination of the water-supply. Although precautions were taken and the necessary sanitary conveniences were provided at the camp he had ascertained by personal observation that these were not always used. In many instances also the household slops were thrown on the ground. He considered it would be a mere accident if during the course of the work no cases of typhoid were introduced to the camp from outside, and "to retain the camp in its present position is to juggle with fate." The Public Works Department, which is responsible for the camp, states that the site was selected and approved two years ago by the then medical officer to the Water and Sewerage Board, Mr. T. Mailler Kendall. The matter has been referred to the President of the Board of Health for report.

Death from Narcotile given by a Dentist.

A dentist in Sydney administered narcotile for extraction of teeth and the patient died. Post-mortem examination showed congestion of the air passages and a flabby heart. The coroner said that the deceased died from the administration of narcotile. He added that there was nothing in the law to prevent the administration of anæsthetics by dentists but he thought that they should not be administered without an examination by a medical man.

Lunacy Administration in Victoria.

The new Inspector-General of Insane, Dr. W. E. Jones, has arrived in Melbourne and taken up the duties of his position. The new Lunacy Act was passed 15 months ago and the executive council has issued a proclamation bringing the Act into force on March 28th. It provides for the establishment of necessary houses but nothing has been done by the Government to secure places suitable for receiving houses.

State Care of Inebriates.

The Chief Secretary of Victoria has been considering the question of establishing an inebriate institution under the Act passed last session and has received a report from the medical officer to the Melbourne Gaol, Dr. Godfrey, on the subject. The returns for 1904 show that 62 males and 49 females—a total of 111—were convicted three times for drunkenness alone—that is, drunkenness not combined with any other crime. Dr. Godfrey, therefore, thinks that accommodation should be provided in an inebriate institution for at least 50 persons. Prisoners under remand and under sentence who were treated in the gaol hospital last year for alcoholism numbered 401 males and 103 females—a total of 504. Of these, 42 males and seven females were in the most acute condition with delirium tremens, requiring mechanical restriction. Over 450 were in various stages of acute or chronic alcoholism, varying from the initial stage of delirium tremens to the subacute form. The average period of hospital treatment was eight days. The number of those admitted to the hospital three times or more for delirium tremens during the year was: males, 40; females, 34; total, 74. There had been admitted to the gaol, of all types, about 80 male and 70 female habitual drunkards during the year. Under a rigid application of the proposed law that three or more convictions should constitute habitual drunkenness nearly all of these would be liable to committal to the inebriate institution during the first part of its operation, but as a number of these are more or less criminals or vagrants it is probable that a proportion will be imprisoned at various times on other charges. Therefore, about 30 males and 25 females would probably be the number to provide for.

March 15th.

Obituary.

THOMAS MORTON, M.D. LOND., M.R.C.S. ENG., L.S.A.

Dr. Thomas Morton died at his residence, 15, Greville-road, Kilburn, London, N.W., on March 27th after a short illness. He was born at Holbeach in Lincolnshire in November, 1836, his father being the Rev. James Morton, vicar of Holbeach and prebendary of Lincoln. In 1854 he entered at Queens' College, Cambridge, but in the following year he

received an appointment as a clerk in the office of the secretary of the General Post Office. After three years spent in this service he resolved to enter the medical profession. He accordingly matriculated at the University of London and entered at King's College in 1858, gaining a Warneford entrance scholarship. In 1862 he obtained the diplomas of M.R.C.S. Eng. and L.S.A. and after a visit to the Paris hospitals he graduated as M.B. Lond. later in the same year, taking the M.D. degree in 1865. In 1863 he commenced practice in Kilburn and in the following year married a daughter of the late Mr. William J. Thoms, F.S.A., librarian of the House of Lords and originator of *Notes and Queries*. At an early period in his career he became surgeon to the Kilburn Dispensary and while holding this appointment he published in the *Obstetrical Journal of Great Britain and Ireland* several cases of puerperal septicæmia successfully treated by purgation with calomel combined with Dover's powder or compound extract of colocynth. This system of eliminating toxic material was anticipatory of more recent practice by at least one eminent gynæcologist now deceased. Dr. Morton was one of the founders of the Kilburn Provident Medical Institute which came into existence about 1874 and the services which he rendered during his long connexion with it were recognised by his being elected chairman and consulting medical officer. From the time of his joining the Church of England Temperance Society in 1875 he became an active worker in the cause of temperance. He was intimately associated with the late Dr. Norman Kerr in the temperance movement and was a member of the Society for the Study of Inebriety from its foundation in 1884 until his death. He was secretary to the committee appointed to inquire into the relation of heredity to drunkenness and the *résumé* which he made of the committee's proceedings was a model of precision and literary grace. Rarely absent from the meetings of the society, when he rose to speak—as he frequently did—his fine presence and the modesty and earnestness of his bearing at once commanded the attention of his audience. Though an ardent advocate of temperance Dr. Morton was wholly unaggressive; he was a man who worked unobtrusively for good, one whom but to know was to honour. His good influence will long outlast him.

Sir William Broadbent writes to us as follows: "I have known Dr. Morton almost from the time of my coming to London and his character always commanded my respect and regard in a very high degree. He seemed to realise the type of the family medical man. He was thorough in his investigation, calm in manner, kind, sympathetic, and above all trustworthy and judicious, a friend in whom his patients could safely confide. A convinced total abstainer he was moderate in the advocacy of his views, but exercised great personal influence in the direction of temperance. If he had a visible fault it was modesty, but the members of the Harveian Society will remember the quiet dignity with which he filled the office of President."

EDWIN THOMAS TRUMAN, M.R.C.S. ENG.

Mr. Edwin Thomas Truman, who died on April 8th at the age of 86 years, held for over half a century the position of dentist to the Royal Household, having been appointed on Feb. 28th, 1855. Mr. Truman's name was, however, more widely known in connexion with matters outside the immediate practice of his profession. The first Atlantic cable in 1858 failed owing to want of perfect and durable insulation, due to the fact that gutta-percha used as the protective covering could not at that time be thoroughly purified. Mr. Truman, who had been experimenting with gutta-percha for ten years in connexion with his professional work, discovered a method by which gutta-percha could be prepared in any quantity by purely mechanical means without injury to the material. The patent of the discovery was disposed of to the gutta-percha company who made the cable for the Atlantic Telegraph Company, and nearly all cables subsequently laid have been covered with gutta-percha purified by Mr. Truman's process. In addition to being an inventor Mr. Truman was probably the oldest book-collector in London at the time of his death, having started his hobby at the age of 15 years. He was specially interested in Cruikshank's works, of which he formed by far the finest collection in existence and he was perfectly familiar with every detail of his subject. He also possessed a fine collection of old historical portraits of English celebrities and of coloured prints, caricatures, and drawings

DAVID SMITH, M.D. ST. AND., M.R.C.S. ENG.

Dr. David Smith died on April 4th, in his seventieth year, at his residence, 1, Westbourne-terrace, Glasgow, after a brief illness. He was born at Ochiltree in Ayrshire and studied medicine at the Universities of Glasgow and St. Andrews, where he was noted for diligence and gained several prizes. In 1858 he took the diploma of M.R.C.S. Eng. and in 1861 he graduated as M.D. at St. Andrews. Soon after becoming qualified he was appointed demonstrator and assistant to Dr. William Mackenzie of Glasgow, author of "A Practical Treatise on Diseases of the Eye" and various other ophthalmological works. Dr. Smith practically spent all his life in Glasgow. He remained with Dr. Mackenzie about seven years, after which he engaged in general practice for some time, but for the last 20 years he devoted himself to ophthalmic work. In 1868 and 1869 he contributed to THE LANCET a series of six lengthy articles on the "Structure of the Adult Human Vitreous Humour." He also wrote a treatise on "The Preservation of Sight," published in 1871. Dr. Smith was much esteemed by all who knew him alike for his professional ability and for the sincerity of his character.

DAVID STEELE MOON, L.R.C.P., L.R.C.S. EDIN.

Mr. David Steele Moon of Dundee died in that city on April 8th after an illness extending over more than a year. He was a native of Liff, near Dundee, and received his professional education at Anderson's College in Glasgow. In 1869 he took the diplomas of L.R.C.P. and L.R.C.S. Edin. which enabled him to hold appointments as house surgeon first in the Glasgow Royal Infirmary and afterwards in the Dundee Royal Infirmary. More than 30 years ago he commenced practice in Dundee, succeeding the late Dr. Begg, whose daughter he married. He soon acquired a high reputation and was greatly esteemed by a large circle of patients for his professional skill and sympathetic devotion to their interests. He gave special attention to surgery and for a period of years was one of the surgeons to the Dundee Royal Infirmary. On the expiry of his term of office he was placed on the consulting staff. He was a zealous member of the local medical society and frequently took part in its discussions. By his professional brethren he was held in high respect because of his rectitude and his invariably genial and sunny disposition. He leaves a widow and one son who is engaged in the study of medicine.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Georg Meissner, formerly professor of physiology in the University of Göttingen, at the age of 75 years. His name is well known in connexion with the "tactile corpuscles."—Dr. Ludwig Glaevecke, titular professor and *privat-docent* of gynæcology in the University of Kiel, at the age of 50 years, suddenly while on a visit to his birthplace, Rostock.—Dr. T. Bornhaupt, professor of surgery in the University of Kieff.

Medical News.

UNIVERSITY OF EDINBURGH.—The following is the official list of passes at the recent professional examinations for degrees in medicine and surgery:—

First Professional Examination.—J. R. Adam, Janet Armstrong, Annie C. Austin, Alice E. M. Babington, G. L. Batra, A. E. C. Beausoleil, W. M. Biden, V. V. Blake, T. C. Borthwick, A. M. Bosc, T. S. Bradburn (with distinction), W. G. Brand, F. A. J. Brodziak, B. S. Browne, J. E. Brydon, W. F. Buist, A. W. Burton (with distinction), J. A. Campbell (with distinction), H. G. Carter, L. L. Cassidy, John Cathcart, H. A. Cookson, N. A. Coward, J. S. Crichton, G. C. Dalton, F. A. Duffield, W. J. Duncan, G. F. Fismer, Helen Forbes, E. L. Galletly, C. F. C. Galloway, W. T. Gardiner, P. K. Ghosh, H. R. B. Gibson, R. L. Girdwood, M.A., W. E. Goss, D. M. Grant, W. B. Grant, F. W. Greaves, J. A. W. Hackett, A. G. Hamilton, Julia V. Henslow, G. de C. Hugo, Herbert Hutson, W. C. Jardine, W. D. S. Johnston, J. H. Jones, S. A. Karim, Lina Kurz, James Langwill, J. H. Lawry, L. A. Lewis, Harry Lipetz, H. A. V. Loots, P. C. Lornie, J. C. Lorraine, H. F. Lumsden, D. C. Macaskill, M.A., J. C. MacCallum, J. R. M'Gregor, G. E. G. Mackay (with distinction), Alex. S. Mackenzie, Arch. D. M'Kenzie, J. T. Mackenzie, A. C. M'Killop, Duncan Mackinnon, A. G. MacLeod, Andrew M'Nair, Donald M'Phail, R. C. MacQueen,

A. J. Macvie, A. C. Mallace, M.A., W. M. Menzies, E. L. Middleton, A. F. Miller, L. M. V. Mitchell, J. B. de W. Molony, Flora Morrison, J. A. Mortimer, N. S. Neill, W. J. Nisbet, E. F. W. Nixey, H. O. O'Neill, R. J. E. Paterson, A. R. Price, S. P. P. Proctor, K. A. Rahman, John Renwick, Agatha M. Robinson, Donald Ross, R. P. Rosser, Jessie A. Scott, G. H. Sinclair, Walter Skirrow, H. F. Smith, B.A., William Stewart, D. E. Stodart, E. A. Strachan, G. P. Taylor, H. W. Teague, Roland Thorp, S. G. Tibbles, Mary M. M. Turpie, John Ware, W. S. Watson, Tom Welsh, Peter Wheeler, E. W. Wilbourne, and R. C. Wupperman.

Second Professional Examination.—J. B. Alexander, Marion H. Archibald, M.A., J. C. Ashton, Aung-Tun, A. C. Barker, C. B. Baxter, A. E. Bennee, Mary F. Bignold, F. G. H. R. Black, Alexander Bremmer, Thomas Buchan, Thomas Burrell (with distinction), R. A. Campbell, R. J. Chapman, W. G. Cobb, C. E. A. Coldicott, C. H. Corbett, F. W. M. Cunningham, S. K. Datta, F. J. Davidson, Mackenzie Douglas, J. C. Drysdale, G. L. Duncan, A. D. Edington, Robert Edwards, P. A. Euvrard, S. B. Faulkner, T. Y. Finlay, William Fleming, W. S. Forbes, Stephen Forrest, M.A., John Fraser, David Geddis, G. H. R. Gibson, J. B. Gibson, M.A., R. M. Glover, I. M. Grant, G. R. Gray, J. G. Greenfield (with distinction), A. R. Gunn, D. J. Guthrie, F. G. Harper, George Henderson, A. Fergus Hewat, J. R. Hill, J. K. A. Hofmeyr, J. H. Horne, T. J. Hughes, Alexander Hunter, H. B. Hunter, M.A., R. H. Jamieson (with distinction), R. F. H. Johnson, J. M. C. Johnston, T. A. Johnston, W. L. Johnston, Daniel Johnstone, G. G. Jolly (with distinction), T. Maitland Jones, M.A., B.Sc., S. W. Joubert, J. G. de Kock, G. F. V. Leary, J. H. Lechler, David Lees, M.A., G. L. Little, N. F. R. Lloyd James Lorimer, Thomas Lyon Angus Macdonald, John Macdonald, G. D. M'Ivor, James F. Mackay, John L. Mackay (with distinction), A. T. Mackenzie, R. E. M'Laren, Paula Maier, J. A. Manifold, R. E. Marwick, F. W. Michael, G. G. Middleton, Margaret M. Miller, A. P. Mitchell, John Morrison, James Muckhart, William Murdie, M.A., F. V. Nanka-Bruce, J. J. H. Nelson, Katharine B. A. Nelson, Joseph Newall, Hilda M. Northcroft, J. L. H. Paterson, C. F. Pattie, G. R. Pflial, W. J. Porteous, N. H. Prior, D. H. Rai, B.A., Adam N. Robertson, Charles Robertson, David Robertson (with distinction), W. A. Robertson, Elsie B. Saunders, W. A. Scobie, Francis L. Scott, W. J. Simpson, A. G. H. Smart, E. Drybrough Smith, F. F. S. Smith, L. D. Stephen, Dorothy W. Stevenson, W. S. Stevenson, G. H. Stofberg, L. H. F. Thatcher, C. A. Thelander (with distinction), C. P. Theron, David Thomson (with distinction), William Thomson, W. Wilson Thomson, A. L. Thornley, Lydia K. Towers, V. F. Usher, V. A. Vijayakar, Martha B. Webb, J. C. B. Williams, D. J. Williamson, and J. L. Wilson.

Third Professional Examination.—J. A. Ainscow, John Alexander, M.A., W. L. L. Alston, E. H. Black, Richard Bladworth, F. H. Bradley, I. W. Brebner, Elizabeth H. Brook, D. S. Buist, Alice M. Burn, S. T. Champtaloup (with distinction), A. E. Chisholm, S. G. Corner, Denis Cotterill, R. G. Cunningham, J. A. Currell, J. Spencer Daniell, A. M. Dick (with distinction), T. H. Dickson, A. M. Drennan (with distinction), J. D. C. Duncan, Robert Duncan, S. S. Dykes, M. S. Fraser, Laurence Gibson, G. A. Gordon, M. C. R. Grahame, E. R. Grieveson, George Gunn, J. R. Hall, W. M. P. Henderson, M.A., T. B. Johnston, N. W. Kidston, Olive T. Leonard, William Lumsden, A. T. M'Donald, J. W. S. Macfie, T. S. M'Intosh, Murdo Maclean, Helen M. M'Millan, J. B. M'Moriand, A. C. B. M'Murtrie, K. W. D. Macrae, A. S. Mactavish, J. N. M'Turk, David Mann, G. M. Melville, Ada E. Miller, Agnes E. Porter, Austin Priestman, George Raffan, Mabel L. Ramsay (with distinction), G. Y. Richardson, John Ritchie, R. M. Robb, W. S. I. Robertson, James Scott, T. H. Scott, H. L. Sells, Alice C. Sharp, R. C. Standring Smith, R. St. C. Steuart, A. D. Stewart, K. R. Tampi, W. B. Tannahill, D. R. Taylor, C. H. Tewsley, H. H. Thorburn, F. J. G. Tocher, Annie D. Urquhart, R. H. Walton, A. I. Shepheard Walwyn, W. E. R. Williams, Marian E. Wilson, and Emily C. Wybourne.

Third Professional Examination (New Regulations).—G. P. Adshead, J. H. Aikman, A. F. Babonau, J. D. Bowie, H. F. Briggs, C. H. Burgess, J. M. Christie, William Core, M.A., Arnold Davies, D. D. Dunn, J. S. Edwards (with distinction), Robert Fraser, J. W. Frew, E. C. Girling, J. E. Gordon, W. L. Gordon, K. K. Grieve, Nettie D. Hendrie, A. S. Holden, W. T. A. Jolly, A. G. K. Ledger, Alfred Leitch, Peter Lornie, John M'Cutcheon, W. K. Macdonald (with distinction), J. N. MacLaughlin, J. A. MacLeod, J. S. Manson, R. P. Mathers, C. Irvine Milne, H. J. More, George Pollock, Edith G. Pycroft, Eustace Russell, W. O. Sclater, E. D. Simson, E. R. Thompson, J. N. Turnbull, A. G. Visser, G. F. C. Wallis, O. H. Williams, Ethel Wiseman, and A. W. Young.

LONDON SCHOOL OF TROPICAL MEDICINE (UNIVERSITY OF LONDON).—Of the students of the above school who presented themselves for the examination in April, 1905, the following have passed:—

*Dr. B. Ludovici (Colonial Service), *Dr. F. B. Thompson (Colonial Service), *Miss H. B. Hanson, M.D., Miss E. Watts, Dr. R. F. William (Colonial Service), Dr. H. A. Foy, Miss M. E. Hayes, M.B., and Dr. R. van Someren.

* Passed with distinction.

MEDICAL MAGISTRATE.—Alderman S. E Johnson, L.S.A. Lond., L.R.C.S. Edin., has been enrolled on the commission of the peace for Worcester.

DONATIONS AND BEQUESTS.—By the will of Mr. Luther Holden, F.R.C.S., St. Bartholomew's Hospital will receive £3000 to found and to endow a Luther Holden Scholarship in surgery and £500 for the rebuilding fund. Miss Sleigh, "Sister President" at St. Bartholomew's Hospital, will receive £100. The testator also left a sum of £10,000, subject to his wife's life interest, as to one-half for the Samaritan Fund of St. Bartholomew's Hospital.

AMBIDEXTERITY FROM THE SURGEON'S POINT OF VIEW.—On April 13th, at the rooms of the Royal Statistical Society, Adelphi-terrace, Strand, W.C., Mr. E. Noble Smith delivered the fourth of the series of lectures for the session 1905 to the members of the Ambidextral Cultural Society, of which he is President. There could be no doubt, he said, that the left hand had been very much neglected and it would be an advantage to train that hand equally with the right. The aim of the society, however, should be to teach dexterity as well as ambidexterity. Ambidexterity was of great use to the surgeon who might at any time be called upon to use either hand. In warfare a surgeon might be suddenly deprived of his right hand and it would be an enormous advantage to him if he had already learned to use his left. General Baden Powell, who was a great advocate of ambidexterity, had stated that a soldier is not properly trained until he can use his left hand as well as his right. He (the lecturer) was of opinion that by training the left hand the power of using the right was also developed to a greater degree and he gave several examples to show that not only our manual abilities but our senses also were not trained to their full capacity. The general use of the right hand in preference to the left was probably responsible for a large number of cases of spinal curvature. In 200 cases of dorsal curvature of the spine which he had examined the curve to the right was present more than twice as frequently as the curve to the left and in an examination of 118 cases he found the proportion to be 5 to 1. In the large majority of cases of curvature to the left there were special contributing causes—such as wry neck, short leg, and so forth. A French surgeon had found the proportion in 1000 cases to be 7 to 1. Special desks should be provided for children at school and he advocated the use of a couch that children might read in the prone position. In conclusion, he hoped that the time would come when the bodies of scholars would be as liberally provided for as were their minds. The society was doing a good and useful work and it ought to receive the support of the public who were invited to become members. The first of the series of lectures, Ambidexterity in Music, by Professor W. H. Cummings, which was delivered in February last at the Guildhall School of Music, will be repeated with additional illustrations and artists at the Erard Rooms, Great Marlborough-street, during the month of May.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Vivisection.

Mr. TOMKINSON had a motion on the paper on the evening of Wednesday, April 12th, about the rules governing the practice of vivisection, but the Home Rule debate blocked the way and the matter had to be deferred till a more convenient opportunity, which probably will not occur in the life of this parliament. Had Mr. Tomkinson obtained the ear of the House he would have moved: "That this House is of opinion that the rules governing the practice of vivisection are confusing and contradictory in their tenour, have wholly failed to secure to animals that immunity from pain they were designed to afford, and urgently require revision; and that, as no rules can be devised to effect this object, the practice of vivisection should be wholly prohibited."

Lunacy Bill.

The ATTORNEY-GENERAL for England has reintroduced the Bill to amend the Lunacy Acts which he brought in at the end of last session as a result of the debate on the subject which was initiated by Sir JOHN BATTY TUKE.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 12TH.

Small-pox at Bradford.

Sir WALTER FOSTER asked the President of the Local Government Board whether he was aware of the outbreak of small-pox at Bradford; and whether he would call the attention of the guardians to the importance of the earliest discovery of cases of the disease and with this view suggest to the guardians the issue of notices to the public urging them to seek medical advice at the earliest opportunity in all feverish ailments accompanied by a rash, however slight.—Mr. GERALD BALFOUR said: I am aware that there have been cases of small-pox at Bradford during the present year. The suggestions referred to in the question appear to me rather to concern the town council than the guardians. I have no reason to doubt that the town council and its officers are taking all precautions which experience has shown to be necessary in dealing with the matter, but I will draw the attention of the town council to the suggestion of the honourable Member. I may

add that 19 additional cases were notified during the week ended on April 8th and I am in communication with the town council as to the circumstances which led to their occurrence.

Sir WALTER FOSTER further asked the President of the Local Government Board whether during the past few years the Bradford guardians had reduced the number of applications for out-relief, and whether they had discouraged applications for medical out-relief by requiring parents (in the case of sick children) to attend before the board or a committee, or by making the relief on loan in the first instance, or by other means; and, if so, whether he would send a communication to the guardians recommending them to encourage applications for medical out-relief (by those unable to pay for medical advice) in the early stages of illness and before infectious diseases have developed.—Mr. GERALD BALFOUR replied: I am aware that some few years since the Bradford guardians adopted a policy of administration of out-relief the effect of which has been to diminish the number of applications, but I have no information to show that the action of the guardians has been such as to render it necessary or desirable to send to them a communication of the kind referred to in the latter part of the question.

Mr. HENDERSON asked the Home Secretary whether his attention had been called to the fact that at Bradford a coroner and jury were under observation because they were compelled to view the body of a man who, in the opinion of the medical officer, had been suffering from malignant small-pox; and whether, in view of the practice of viewing bodies in such cases becoming a possible danger to the community, he would consider the advisability of again introducing the Bill which in 1879 passed its second reading under the care of the then Home Secretary, the object of which was to make the viewing of bodies by coroners and juries no longer compulsory.—Mr. AKERS-DOUGLAS replied: My attention has not been called to the case mentioned by the honourable Member. With regard to the general question I fear that I cannot add anything to an answer on the same subject which I gave on March 23rd.—Mr. MACNEILL asked whether it was not the case that many coroners were opposed to the viewing of bodies.—Mr. AKERS-DOUGLAS said: A great many coroners are opposed to the practice of viewing bodies but until I have made further inquiries I am not inclined to introduce a Bill.

THURSDAY, APRIL 13TH.

Litigation with a Medical Officer.

Mr. CATHCART WASON asked the Lord Advocate whether he was aware that the legal expenses incurred by the Durness parish council by its litigation with the parish medical officer had been put upon the parish rates, and whether, seeing that those ratepayers who jointly paid more than two-thirds of the parish rates protested against the action of the chairman and two members of the parish council which led to these legal expenses being incurred, he would say whether the Local Government Board for Scotland had sanctioned the placing of these legal expenses upon the parish rates.—The LORD ADVOCATE answered: I am informed that the Local Government Board has not sanctioned the expenses incurred by this parish council.

The Deportation of Insane Paupers.

Mr. GILHOOLY asked the Chief Secretary for Ireland whether he had received a resolution, passed unanimously by the committee of management of the Cork District Lunatic Asylum, calling on him to promote a Bill to enable the committee to deport insane patients of other nationalities and counties who had been committed and remained chargeable to the local rates and pointing out that those patients occupied the places in the institution erected, maintained, and taxed for local patients, thereby contributing to the overcrowding which at present existed in the asylum; and, if so, whether he proposed to give effect to it during this session.—Mr. LONG answered: The resolution has been received. I am unable at present to give an undertaking to introduce legislation on the subject.

MONDAY, APRIL 17TH.

Appointment of Highland Medical Officer.

MR. WEIR asked the Lord Advocate whether, in view of the extent of the area of the mainland of the combined counties of Ross and Cromarty and Inverness-shire, he would state whether the proposal to appoint one medical officer of health for the mainland of these counties had received the sanction of the Local Government Board for Scotland.—The LORD ADVOCATE said: The Local Government Board does not favour the proposal and has not therefore sanctioned the scheme.

Alleged Discontent in the Royal Army Medical Corps.

Dr. E. C. THOMPSON asked the Secretary of State for War whether he was aware of the discontent existing among the officers of the Royal Army Medical Corps at the delegation to the Advisory Board of the duty of recommending to the Secretary of State officers for promotion; and whether, seeing that many of the members of the board were civil medical practitioners, had no personal knowledge of the qualifications of many of the officers recently passed over, and were obliged to take their opinion of these officers from others junior to themselves, and that the continuance of the existing system threw the responsibility of promotions from the Secretary of State and the Director-General on the Advisory Board, he would arrange that in future officers passed over with excellent official records would be informed of the reason for their supersession.—Mr. ARNOLD FORSTER replied: The honourable Member raised last session the points now brought forward again and definite answers were given to each. I have nothing to add to the answers which I then gave him and I am not aware of the dissatisfaction.

REGISTRATION OF NURSES: EVIDENCE BEFORE SELECT COMMITTEE.

The Select Committee of the House of Commons which has been re-appointed this session to consider the expediency of providing for the registration of nurses commenced the hearing of evidence on April 12th. Mr. H. J. TENNANT was in the chair.

Miss FORREST of the Victoria and Bournemouth Nursing Institute and Home Hospital, replying to Mr. CHARLES HOBHOUSE, in the temporary absence of the chairman, said she was in favour of a system of State registration. Her position as head of what she believed to be the largest private provincial nursing institute brought to her notice two points, both of which would be lessened, if not entirely obviated, by State registration. One was the great difficulty in discovering what each nurse knew before engaging her, owing to the different standards in different hospitals, the different standards existing at the same hospital at different times or if the officials were changed, or the absolute want of standard. There was also the difficulty of tracing nurses, no register being kept. She had control over 160 nurses resident in four institutions, and they were sent over the south and west of England and also to the Continent. A three years' training was necessary in the case of the nurses she engaged. That rule had been broken once or twice in respect of nurses whom she knew. She experienced great difficulty in obtaining information about nurses who applied but she got a sufficient number for her needs. As to the different standards in the different hospitals, everything was taught in a hospital if the matron was good and cared for her duties. If not, the teaching went to the wall. Three years was a safe minimum for general training in a hospital of 50 beds if the training was good. She wished to remedy the want of standard by State registration, under which the committee would be bound to see that the matron brought her nurses up to the standard. The central board would set the examination and if the nurses of a hospital passed that examination as a rule, they would know that that hospital gave a proper training, but if the great majority failed they would know that a proper training was not given. She did not think the expenses of training for three years at hospitals were very great. Last year 460 nurses, so-called, applied to her and she took all whom she thought were properly trained and these numbered 65. Nurses who had not been trained or were only half-trained practised a good deal. The number of untrained nurses practising in Bournemouth was large.

Replying to Dr. C. F. HUTCHINSON, the witness said she herself ran the institution she had been speaking of; it was her private property; it was not inspected or registered.

You have no committee to be responsible to? You employ the nurses as you like and make any arrangements you like and the nurses are under your sole will and control?—I do not think they will say so but they are, so far as being on my staff is concerned. The accounts, she continued, were audited every six months by a chartered accountant but they were not published. She was responsible only to herself. She thought it would be a very good thing if institutions were registered. There were other institutions not so well known as her own the registration of which would be for the protection of the public and the nurses.

Have you had much trouble as to the inefficiency or want of character of nurses?—Not a great deal, but I have had trouble in getting good nurses.

In the case of a nurse who works on her own account, are not the public protected from fraud because she is not employed except on the recommendation of a medical man or a friend?—I do not know.

So that if a nurse is incompetent she would very soon be found out and would retire? I want to draw out from you the difference between those nurses and the nurses of your institution.—I do not think so. A large number have got a home and they are employed and I know a certain number of them are incompetent. She knew of a monthly nurse whom the medical attendant tried to get rid of but the people would not give her up. Fortunately for the patient and the medical man this nurse fell down and broke her arm. When they then got a trained nurse the people knew the difference and understood why the medical man was so anxious to get her.

But those people who are on their own account have to make their living on their character and ability as nurses, so that the result would be that a nurse not competent would drop out?—No, they have not done so.

In reply to Mr. DOUGLAS Miss FORREST said that she would have the central board appoint a body of experts to examine nurses. She stated in illustration of her evidence that her nephew had been in a nursing home undergoing a very serious operation and that his night nurse was the parlourmaid of the day before.

Answering the CHAIRMAN, she could not give direct evidence of cases of scandal and immorality. She could not go into private houses to see how nurses were getting on and she could not send a Government inspector after them. She would like to have State registration with the object of seeing that nurses were women of sufficient knowledge and properly equipped before attending private cases. She did not think there would be any danger of the wrong kind of women being registered for all time under State registration.

Mr. CHARLES HOBHOUSE: Would you make the removal from the State register consequent upon the loss of moral character or upon the loss of nursing proficiency?—I think certainly on the loss of moral character and in certain circumstances for the loss of efficiency, for that might mean the life of another person

Replying to Sir JOHN BATTY TUKE the witness said that the examination must be to a certain extent theoretical. The nurses must be able to state what symptoms to watch for and to show knowledge as to bed-making and certain things which nurses must do. She did not admit that that would degenerate into mere routine. The registration fee might be two guineas but she thought one guinea would be enough.

The CHAIRMAN asked whether the witness saw any fundamental objection to having two classes of nurses—one perhaps on three years' training and the other with one year's training.

Miss FORREST said she did not think there was any fundamental objection but it would lead inevitably to confusion and the public would not be able to distinguish the one from the other.

The CHAIRMAN instanced the case of a woman who had had some nursing experience going into a house and cooking the meals and helping generally in the house and asked whether the witness would exclude her from the register.

Miss FORREST replied that she would exclude those women from the register as qualified certificated nurses but she would be quite willing that they should have some kind of registration because they performed a very useful service. They might be registered as cottage helps or nurses' helps.

Sir JOHN TUKE: They are very much more than that. In many cases they actually perform the duties of a nurse. In the West Highlands of Scotland they are essentially nurses.

Mr. CHARLES HOBHOUSE said he understood that the committee would at future sittings have further evidence on this particular point which would bear out the truth of what Sir John Tuke had just said.

Miss E. WORTABET (London) stated, in reply to the CHAIRMAN, that she was trained at the London Temperance Hospital and had been engaged at the Middlesex Hospital, St. George's Hospital, Beirut,

where she acted as lady superintendent, and at hospitals in Egypt, Bordeaux, and Paris. Her training cost her nearly £100 a year during three years. In France she found that the nurses were not so good as in England but there were some points about their nursing that might well be copied. In England each hospital was a law unto itself and trained as it liked. Something more definite and uniform was requisite. There ought to be a central and unbiassed board. In France the training of the nurses was entirely in the hands of the Government. The examinations were arranged by the municipalities and the nurses got the same books in all the different hospitals. There was nothing to correspond to registration in France except that the Government stood behind the diploma. The hospitals were in the hands of the Government so that the diploma was a Government diploma. She did not think that nurses not in possession of a diploma should be employed by medical men but it would not be against the law for such women to offer their services. If nursing was to be dignified as a profession and a means of livelihood for women the registration fee ought to be fairly high. Some value ought to be put upon the profession which required education and brain work. Nurses would make a sacrifice and pay a fee of five guineas. The nursing profession ought not to be on a low level. If nursing were made a more dignified profession there would be a sufficiency of candidates to supply the demand. They ought to try for a higher standard. She would have as the first standard the fully trained nurse and another standard for those who were to be teachers and organisers or who were to occupy higher posts.

Replying to Mr. PIERPOINT, she said she thought that the nurses' calling ought to be erected into a profession.

Mr. CHARLES HOBHOUSE: I notice you use the words that nursing should be a dignified profession in the hands of educated women.—Decidedly. They ought to have a certain amount of education unquestionably. I do not think you ought to have an ignorant woman at all.

Would that not confine the field of candidates?—I do not think so. Once the profession was respected there would be a certain amount of pleasure in studying for it. When there is some scope we shall have better class women going in for it. The more a woman knew, she continued, the better she could do her work. The question of emoluments ought to be a secondary question to a nurse. She did not think it was desired to raise the emoluments of nurses. Most of them did the work out of love for it.

Answering Sir JOHN TUKE she said it was her opinion that they could have security for the standard of training by means of a State examination.

The committee then adjourned until the following day, when it heard the evidence of Miss LUCKES, matron of the London Hospital.

Replying to the CHAIRMAN, she said that she wished to corroborate the evidence given by Mr. Sydney Holland before the committee last session. After explaining the system of training pursued in the London Hospital she stated that the certificate was not given till the end of two years and it was filled up in accordance with the result of the examination and the nurses' conduct and practical work. The nurses in the London Hospital had ample time in two years to gather up the necessary knowledge and experience. 57 newly certificated nurses were added to the private staff last year. They nursed for all sorts of medical men who had nothing whatever to do with the London Hospital and the accounts from those medical men and the patients could not possibly be better. Uniformity was to be deprecated because nurses were wanted for every variety of circumstance. They could not get highly skilled and trained nurses to do a great deal of certain nursing work that had to be done throughout the country. It was a great mistake to aim at uniformity. They should rather make people as perfect as possible for what they were fitted to do. The great outcry against nurses was not against ignorance but against the women themselves. The best method of eliminating inefficiency was by producing as many nurses as possible of a better type. The inefficient ones would have no chance when they did that. Many nurses who were trained went home or got married and there was a great wastage among the best class of nurses. She admitted that there were a good many bad nurses but not so many as was represented. In ten years the London Hospital granted 795 certificates and turned out 619 certificated and qualified nurses who left during that period. Of these 136 left for home or other purposes so that out of 619 only 483 were provided for the use of the public outside. She could not agree with a previous witness as to the possibility, under registration, of the State supervising nurses and preventing them getting rusty. Neither did she agree with the statement that the servant class provided the best nurses. There was room for that class but the adaptability attributed to the servant class was not confined to any one social class.

Replying to Viscount MORPETH Miss LUCKES said that there was at present a great tendency to make examinations more learned than they were. It was better for hospitals to grant their own certificates and she did not see the reason for a uniform examination.

Would you avoid uniformity by having separate certificates for fully trained and partially trained nurses?—Practically we do that. There are two or three grades of nurses now. I think it would be a mistake for the State to do so because it would be fixing the mark of second or third rate on women who might be first-rate for certain kinds of work.

Sir JOHN STIRLING-MAXWELL: Do you think many nurses would register if this Bill was passed?—Yes, I am afraid those who are personally unsuitable would get a qualification from the State which they do not now have. I am quite opposed to the idea of registration, which would be a guarantee. Continuing, she submitted that if there was a scheme under which every person with systematic training should be registered it would exclude those who had absolutely no training, but it might also exclude many who had a little training and were able to do useful work. Very good work could be done by half-trained people provided that there was no fraud or deception about it. For certain cases a very little training went a very long way.

In reply to Mr. CHARLES HOBHOUSE, she said that if a central board for registration were set up they would require to have all the interests represented—the nurses' interest, the lay interest, and the medical practitioners' interest. In the London Hospital the nurses with a two years' certificate were allowed to take serious cases. They had to serve other two years beyond the period of training. That was for the benefit of the hospital as well as the nurses themselves.

With regard to the shortage of nurses which you indicate exists, can you estimate the number of certificated nurses in the country?—No.

The CHAIRMAN said the census would give the number.

Sir JOHN TUKE remarked that on that point the census was unreliable.

Mr. CHARLES HOBHOUSE: Would an estimate of 80,000 be excessive in your opinion?—I think half that number would be excessive.

Continuing, she said the London Hospital had always been aiming at increasing the accommodation of nurses and they were doing so now. It was desirable that every hospital should give a certificate but she did not think that a nurse who did not possess one should be cut off from nursing. All who professed to be trained nurses should have some certificate. While she thought it was difficult for a State certificate to deal with individual characteristics, which ought to be left for the report of the matron of the hospital, a State certificate would prevent the public making further and proper inquiries as to the character and efficiency of the nurse.

Dr. HUTCHINSON remarked that the advocates of State registration said that their proposal was to protect the public from incompetent nurses and to improve the position of nurses. He then proceeded to ask questions with regard to various classes of nurses.

Miss LUCKES, in her replies, expressed the opinion that the public did not want protection in regard to hospital nurses or nurses in Poor-law infirmaries. With regard to district nurses they worked generally under a committee and that committee would be responsible for the competency of the nurses. In the case of private surgical and medical homes, the control of the matron and the supervision of the physician or surgeon would be the guarantee to the public that the nurses were competent. She admitted at the same time that many incompetent nurses had been in those homes. The only nurses left were those in institutions and those working on their own account. The institution had to be responsible for its nurses but there was no registration of institutions at present. She thought it possible that something might be done to protect the public against those institutions sending out incompetent nurses, if the registration of those institutions would do it. She had no objection to private institutions being registered and she thought they had much better be registered, so as to give some guarantee that their nurses were certificated by a hospital. She did not, however, think that it was for the State to define what was a competent nurse. In a chronic case a medical man did not want a highly trained nurse but a pleasant woman who knew what was wanted. The public if they employed a nurse on the recommendation of a medical man or their friends could protect themselves but the medical men and those who engaged nurses should first inquire about the nurses more than they did at present. Registration, however, would not cure that.

Replying to Mr. DOUGLAS, she said the examinations were too stiff and too theoretical. It was desirable to check the raising of the standard of examination. She did not want nurses to be made amateur doctors. The pseudo-scientific young person was a most objectionable person in the sick room. She would like the elementary knowledge of nurses to be accurate and thorough.

The CHAIRMAN: Do you think the profession is in such a condition that it requires no alteration?—I think it is in a condition of remarkable vitality. It would be a pity to check the development. What would be an improvement in one hospital, she added, would be retrograde in another. If there was increased accommodation for training in the larger and smaller hospitals that would increase the number of nurses. The public did not not require any protection as the remedy was in their own hands. They could get the nurse they wanted by proper inquiries.

This completed Miss Lückes's evidence and the committee adjourned till May 11th.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent Garden, W.C.

Lectures on Clinical Surgery. By H. C. Hinder, M.B., M.Ch., Honorary Surgeon, Royal Prince Alfred Hospital; Joint Lecturer on Clinical Surgery, University of Sydney. Price 12*s.* 6*d.* net.

BLACK, ADAM AND CHARLES, Soho-square, London.

Plea for a Simpler Life and Fads of an Old Physician. By George S. Keith, M.D., LL.D., F.R.C.P.E. Price 2*s.* 6*d.*

CHAPMAN AND HALL, LIMITED, London.

A Modern Utopia. By H. G. Wells. Price 7*s.* 6*d.*

CHATTO AND WINDUS, London.

Heirs of Ruben. By Chris. Healy. Price 6*s.*

CHURCHILL, J. AND A., 7, Great Marlborough-street, W.

The Royal London Ophthalmic Hospital Reports. Edited by William Lang, F.R.C.S. Eng. Vol. XVI. Part II. March, 1905. Price 5*s.*

The Principles and Practice of Medical Jurisprudence. By the late Alfred Swaine Taylor, M.D., F.R.S., Fellow of the Royal College of Physicians of London. Fifth edition. Edited, revised, and brought up to date by Fred. J. Smith, M.A., M.D. Oxon., Fellow of the Royal College of Physicians, London; Fellow of the Royal College of Surgeons, Eng.; Lecturer on Medical Jurisprudence at the London Hospital; Medical Referee to the Home Office. Two volumes. Price 36*s.* net.

CONSTABLE, ARCHIBALD, AND CO., LIMITED, 16, James-street, Haymarket, S.W.

Surgical Case Book Charts for Rectal Diseases. By Cecil H. Leaf, M.A., M.B., Cantab., F.R.C.S. Eng., Assistant Surgeon to the Cancer Hospital and the Gordon Hospital for Rectal Diseases. Price 1*s.* 6*d.* net.

HARRISON AND SONS, St. Martin's-land, W.C.

Reports of the Commission appointed by the Admiralty, the War Office, and the Civil Government of Malta for the Investigation of Mediterranean Fever, under the Supervision of an Advisory Committee of the Royal Society. Part I. Price 3*s.*

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Leitfaden der Kriegschirurgischen Operations-und Verbandstechnik. Von Dr. Hermann Fischer, ord. Professor der Chirurgie, Geh. Medizinal-Rat. Zweite Auflage. Price M.4.

Die Gesundheitspflege des Heeres. Ein Leitfaden für Offiziere, Sanitätsoffiziere und Studierende. Von Dr. A. Hiller, Oberstabsarzt z.D. und Privatdozent. Price M.8.

Die Soziale Bekämpfung der Tuberkulose als Volkskrankheit in Europa und Amerika. Denkschrift der Tuberkulose-Kommission der Pirogoff-Gesellschaft Russischer Aerzte vorgelegt und dem VIII. Pirogoff-Aerztekongress gewidmet. Von Dr. Philipp M. Blumenthal, Moskau. (Frankreich-Belgien-England-Deutschland.) Deutsche Bearbeitung von Dr. Dworetzky. Mit einem Vorwort von E. v. Leyden. Price M.5.

Der Aderlass. Eine monographische Studie. Von Dr. Alexander Strubell, in Dresden. Price M.5.

HODDER AND STOUGHTON, 27, Paternoster-row, E.C.

The Treatment of Diseases of the Eye. By Dr. Victor Hanke, First Assistant in the University Eye Clinic of Hofrath Professor E. Fuchs in Vienna. Translated by J. Herbert Parsons, B.Sc., D.Sc., F.R.C.S., Assistant Ophthalmic Surgeon, University College Hospital, and George Coats, M.D., F.R.C.S., Chief Clinical Assistant, Royal London (Moorfields) Ophthalmic Hospital. Price 3s. 6d. net.

Trixy. By Elizabeth Stuart Phelps Ward. Price 6s.

Dr. Grenfell's Parish: The Deep Sea Fishermen. By Norman Duncan, Author of "Doctor Luke of the Labrador." Price 5s.

HOLDER, ALFRED, I., Rotenturmstrasze, 13, Wien.

Handbuch der Urologie. Herausgegeben von Dr. Anton v. Frisch, a.ö. Professor der Chirurgie an der Wiener Universität und Dr. Otto Zuckerkandl, Privatdozent für Chirurgie an der Wiener Universität. Zweiter Band. Chirurgische Erkrankungen der Niere, des Nierenbeckens und des Harnleiters. Von Privatdozent Dr. Paul Wagner. Preis, geheftet, M.27.50; in Halbfranz gebunden, M.30.

KIMPTON, HENRY, 13, Furnival-street, London, E.C.

Radiotherapy and Phototherapy, including Radium and High-frequency Currents, their Medical and Surgical Applications in Diagnosis and Treatment. For Students and Practitioners. By Charles Warrenne Allen, M.D., Professor of Dermatology in the New York Post-Graduate Medical School, with the Cooperation of Milton Franklin, M.D., Lecturer on Electro-radiotherapy, New York Polyclinic Medical School, and Samuel Stern, M.D., Radiotherapist to Dr. Lustgarten's Clinic at the Mount Sinai Hospital. Price 22s. 6d. net.

A Practical Treatise on Diseases of the Skin. For the Use of Students and Practitioners. By James Nevins Hyde, A.M., M.D., Professor of Skin, Genito-urinary, and Venereal Diseases, Rush Medical College, Chicago, and Frank Hugh Montgomery, M.D., Associate Professor of Skin, Genito-urinary, and Venereal Diseases, Rush Medical College, Chicago. Seventh and revised edition. Price 25s. net.

Infectious Diseases: their Etiology, Diagnosis, and Treatment. By G. H. Roger, Professor Extraordinary in the Faculty of Medicine of Paris. Translated by M. S. Gabriel, M.D. Price 30s. net.

LEWIS, H. K., 136, Gower-street, W.C.

Dental Surgery for Medical Practitioners and Students of Medicine. By A. W. Barrett, M.B. Lond., M.R.C.S., L.D.S.E., Consulting Dental Surgeon to the London Hospital and late Lecturer on Dental Surgery in the Medical School; Examiner in Dental Surgery to the Royal College of Surgeons, England. Fourth edition. Price 3s. 6d.

MARSHALL, HORACE, AND SON, Temple House, Temple Avenue, E.C.

Divine Dual Government: a Key to the Bible, to Evolution, and to Life's Enigmas. By William Woods Smyth, Fellow of the Medical Society, London, Author of "The Bible and the Doctrine of Evolution," "The Government of God," &c. New edition, revised and illustrated, with new matter Price 6s.

MAYNE, ALEXANDER, AND BOYD, 2, Corporation-street, Belfast.

Colles's Fracture and Other Fractures and Disjunctions at the Lower End of the Radius and Ulna: Being an Analysis of Seventy Cases recently under the Care of the Author. By Andrew Fullerton, B.Ch., F.R.C.S. Irel., Hon. Assist. Surgeon to the Royal Victoria Hospital and to the Belfast Hospital for Sick Children. Price 1s. net.

OWEN, A., AND CO., 286, High Holborn, W.C.

Alcoholic Poisoning and Degeneration. By Prof. G. Bunge, M.D., Ph.D. Price 6d. net.

SEEBER, BERNARDO, Firenze.

Le Ferite prodotte dai Moderni Fucili da Guerra. Del Dott. Domenico Taddei, Libero Docente di Patologia Chirurgica. Con Prefazione del colonnello medico Dott. Prof. P. Imbriaco. Price L.8.

SPOTTISWOODE AND CO., LIMITED, 54, Gracechurch-street, E.C.

The Dentists' Register. Printed and published under the direction of the General Council of Medical Education and Registration of the United Kingdom, pursuant to an Act passed in the year XLI. and XLII. Victoria, Cap. XXXIII., entitled An Act to Amend the Law relating to Dental Practitioners. 1905. Price 3s. 4d.

STEINHEIL, G., 2, Rue Casimir-Delavigne, Paris.

Traitement des Ankyloses par la Résection Orthopédique et l'Interposition Musculaire. Par le Dr. Alphonse Huguier, Ancien Interne Lauréat des Hôpitaux de Paris (Médaille d'Argent, 1903), Ancien Aide d'Anatomie à la Faculté de Médecine. Price not stated.

Traité de Médecine Opératoire et de Thérapeutique Chirurgicale. Publié sous la direction de Paul Berger et Henri Hartmann. Chirurgie du Système Nerveux: Crane et Encéphale—Rachis et Moelle—Nerfs. Par Georges Marion, Professeur agrégé à la Faculté de Médecine de Paris, Chirurgien des Hôpitaux. Price Fr.15.

STOCK, ELLIOT, 62, Paternoster-row, E.C.

The History of the Society of Apothecaries of London. By C. R. B. Barrett, M.A. Oxon., author of "The Trinity House of Deptford Strond," "Essex Highways, Byways, and Waterways," &c. With numerous illustrations by the author. Price 21s. net.

STUDER, A. (C. KABITZSCH), Würzburg.

Beiträge zur Klinik der Tuberkulose. Herausgegeben von Dr. Ludolph Brauer, a.o. Professor an der Universität Marburg, Direktor der medizinischen Poliklinik. Band III. Heft 4. Price M.3.50.

Die Direkte Besichtigung der Speiseröhre. Ösophagoskopie. Ein Lehrbuch für den Praktiker. Von Prof. Dr. Hugo Starck, Heidelburg. Price M.7.

THE LAWYERS' CO-OPERATIVE PUBLISHING COMPANY, Rochester, N.Y.

Wharton and Stillé's Medical Jurisprudence. Vol. II. Poisons. By Robert Amory, A.M., M.D., President of the Sixth National Convention of 1880 for revising the U.S. Pharmacopœia; formerly Professor of Physiology, Bowdoin Medical College, and Lecturer on the Physiological Action of Drugs, Harvard Medical School; and Robert L. Emerson, A.B., M.D., Instructor in Physiological Chemistry, Medical School of Harvard University. Fifth edition. Price not stated.

THE OXFORD SHORTHAND (Percy Kingsford), Dover.

The Oxford Shorthand. Nineteenth edition. Price 6d.

THOM, ALEX., AND CO., LIMITED, Dublin (LONGMANS, GREEN, AND CO., London).

The Royal University of Ireland. The Calendar for the Year 1905. Price not stated.

UNIVERSITY PRESS, Cambridge (CAMBRIDGE UNIVERSITY PRESS WAREHOUSE, Ave Maria-lane, London, E.C. C. F. CLAY, Manager).

A Treatise on Plague, dealing with the Historical, Epidemiological, Clinical, Therapeutic and Preventive Aspects of the Disease. By W. J. Simpson, M.D. Aberd., F.R.C.P. Lond., D.P.H. Camb., Professor of Hygiene, King's College, London; Lecturer on Tropical Hygiene, London School of Tropical Medicine; formerly Health Officer, Calcutta; Medical Adviser to the Government of Cape Colony during the outbreak of Plague in 1901; Commissioner for the Colonial Office to inquire into the Causes of the Continuance of Plague in Hong-Kong. Price 16s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

ASHTON, GEORGE, M.D. Manch., M.R.C.S. Eng., L.R.C.P. Lond., has been re-appointed Assistant Surgical Officer to the Manchester Royal Infirmary.

BOAKE, SAMUEL, L.R.C.P. & S. Edin., has been re-appointed Medical Officer of Health of the Chard (Somerset) Rural District.

BOWEN-JONES, L. M., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Carmarthen District of the county of Carmarthen.

CLUTTERBUCK, L. A., M.B., B.S., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

CURL, SYDNEY W., M.A., M.D. Cantab., M.R.C.P. Lond., has been appointed Honorary Physician to the Essex and Colchester Hospital.

ELDER, DOUGLAS, M.B., C.M. Liverp., has been appointed Assistant Medical Officer to the Crossley Sanatorium, Delamere Forest, Cheshire.

EVANS, JOHN HOWELL, M.Ch., F.R.C.S., has been appointed Assistant Surgeon to the Cancer Hospital, Fulham-road, S.W.

FERGUSON, J. P., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Misterton District of the county of Nottingham.

HUTLEY, A., M.B., B.S. Edin., has been appointed Senior House Surgeon to the District Hospital, West Bromwich.

JACKSON, A. L., L.R.C.P. & S. Edin., has been appointed Second Assistant Medical Officer to St. Marylebone Infirmary.

KEYSER, C. R., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Assistant Surgeon to the Cancer Hospital, Fulham-road, S.W.

MCLARTY, A. A., M.D. U.S.A., has been appointed Clinical Assistant to the Chelsea Hospital for Women.

MITCHELL, ALEXANDER, M.B., M.S. Edin., has been appointed Assistant House Surgeon at the District Hospital, West Bromwich.

SWAN, R. H. J., M.S., F.R.C.S., has been appointed Surgical Registrar to the Cancer Hospital, Fulham-road, S.W.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

AUCKLAND, RURAL DISTRICT COUNCIL OF.—Medical Officer of Health and Sanitary Surveyor. Salary £600 per annum, rising to £800.

BRISTOL GENERAL HOSPITAL.—Assistant House Physician. Salary £60, with board, residence, &c. Also Senior House Surgeon. Salary £120 per annum, with board, residence, &c.

BUXTON, DEVONSHIRE HOSPITAL.—Assistant House Surgeon. Salary £70 per annum, with apartments, board, and laundry.
CANTERBURY, KENT AND CANTERBURY HOSPITAL.—House Physician, unmarried. Salary £90 a year, with board and lodging. Also Second Honorary Physician.
CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant for three months.
CHESTERFIELD AND NORTH DERBYSHIRE HOSPITAL AND DISPENSARY.—Junior House Surgeon for six months. Salary £50 per year, with board, apartments, and laundress.
EXMINSTER, DEVON COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £125, rising to £155, with board, residence, and laundry.
GLASGOW, GARTLOCH ASYLUM.—Junior Medical Officer. Salary £125, with board, lodging, and laundry.
HARTSHILL, STOKE-UPON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL.—Assistant House Surgeon for six months. Honorarium £25, and board, apartments, and washing.
HASTINGS, FAIRLIGHT HALL CONVALESCENT HOME.—Visiting Physician (Honorary).
HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.—House Surgeon, unmarried, for six months. Salary £20, with board and residence.
KING'S COLLEGE, LONDON.—Sambrooke Medical Registrarship.
LIVERPOOL INFIRMARY FOR CHILDREN.—House Surgeon. Salary £100 per annum, with board and lodging.
LONDON COUNTY COUNCIL.—Medical Officer to certain employés in the Borough of Woolwich, south of Shooter's Hill-road, exclusive of Shooter's Hill fire station.
LONDON FEVER HOSPITAL, Liverpool-road, N.—Assistant Resident Medical Officer. Salary £120 per annum, with board and lodging.
MANCHESTER ROYAL INFIRMARY.—Medical Practitioner. Salary £150 per annum.
MARGARET-STREET HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Cavendish-square, W.—Physician (honorary).
MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Hampstead and Northwood, Middlesex.—Resident Medical Officer at Northwood. Honorarium £60, with board and residence. Also Senior and Junior Resident Medical Officers at Hampstead. Honorariums: Senior Officer, £100 per annum; Junior Officer, £50 per annum.
NATIONAL HOSPITAL FOR THE RELIEF AND CURE OF THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Resident Medical Officer. Salary £100 a year, with board and residence.
NEWCASTLE-UPON-TYNE DISPENSARY.—Resident Medical Officer. Salary £250, rising to £275, with residence.
NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Junior Resident Medical Officer. Salary £70 per annum, with board, residence, and washing.
NORTHAMPTON, ST. ANDREW'S HOSPITAL FOR MENTAL DISEASES.—Junior Assistant Medical Officer. Salary £200 per annum, with board, rooms, and washing.
NOTTINGHAM GENERAL HOSPITAL.—Assistant House Physician. Salary £100, with board, lodging, and washing.
ST. MARY'S HOSPITAL FOR SICK CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, with board, residence, and laundry.
SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.
SHEFFIELD ROYAL HOSPITAL.—Two Honorary Anæsthetists. Also Honorary Assistant Dental Officer.
SOCIETY OF APOTHECARIES OF LONDON.—Examiner in Surgery.
TOTTENHAM HOSPITAL, London, N.—Honorary Anæsthetist.
UNIVERSITY OF LONDON.—William Lindley Research Studentship in Physiology. Value £100, for one year.
VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Two vacancies on Surgical Staff to Out-patients. Also Honorary Anæsthetist.
WANDSWORTH INFIRMARY.—Senior Assistant Medical Officer, unmarried. Salary £145, with apartments, board, and washing.
WARWICK COUNTY ASYLUM.—Assistant Medical Officer. Salary £100, rising to £130, with full board, &c.

Births, Marriages, and Deaths.

BIRTHS.

KIRTON.—On April 6th, at Cairo, the wife of R. G. Kirton, P.M.O. of the Prisons Department, Egypt, of a daughter.
MASON.—On the 15th inst., at 45, George-street, Portman-square, the wife of G. A. Mason, M.A., M.B., B.C. Cantab., of a son.
STUBBS.—On April 11th, at Brixton-hill, S.W., the wife of John D. Stubbs, M.B., B.C. Cantab., of a son.
VISGER.—On April 11th, at Elm Lodge, Clevedon, Somerset, the wife of Charles Visger, M.R.C.S., a son.

MARRIAGES.

MASON—JOHNSON.—On April 15th, at St. Andrew's Church, Gorleston-on-Sea, Alfred Leighton Mason, L.D.S.R.C.S. Eng., to Mabel Marie, only child of the late George Randall Johnson, Waxham Hall, Norfolk.
ORMOND—EASON.—On the 15th inst., at St. Paul's Church, Forest Hill, S.E., by the Rev. Canon W. A. Moberly, Vicar of St. Bartholomew's, Sydenham, and Rural Dean, assisted by the Rev. Douglas Scott, LL.D., Headmaster of the Mercers' School, Arthur W. Ormond, F.R.C.S., of 37, Queen Anne-street, Cavendish-square, and Guy's Hospital, to Mary Charlotte (May), daughter of Edward H. P. Eason, of Eversley, Forest Hill, S.E.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE HEALTH AND MORALITY OF THE PITCAIRN ISLANDERS.

Mr. R. T. Simons, who last year was instructed by the High Commissioner for the Western Pacific to inquire into the state of affairs in Pitcairn Island, in the South Pacific, where the mutineers of the *Bounty* were landed to take their chance in 1790, has made a report in which the following passages occur:—

"The Pitcairn islanders number 77 males and 92 females, including children and infants, of whom 68 males and 73 females are now resident on the island. They are a hard-working people, more or less healthy, exhibiting certain vicious tendencies which religion has been unable to eradicate. Many of them are narrow-minded and unstable. They have adopted an extraordinary patois (derived from the language of the Tahitian women who accompanied the mutineers of the *Bounty* to Pitcairn Island) which is employed in conversation among themselves, although most of the adults can speak the English language fairly well—in some instances very well, considering their circumstances and environment. There are persons of ability among them, but a few appear to be lacking in intelligence. The children and young people are numerous and, if properly cared for, should turn out useful members of the community.

With regard to the morals of the islanders, in the aggregate I fear I can say little in their favour. Fornication, adultery, illegitimate children, petty thefts, brawls, bad language, &c., are faults among them (happily they do not use intoxicants) and it was disquieting to learn that the laws and regulations dealing with those offences had seldom been enforced. Indeed, the general laxity has been so great, that abortion by means of drugs and instruments of local contrivance was not of infrequent occurrence. I have made provision for the punishment of that and of other crimes in the future.

On arrival at Mangareva, on my way to Pitcairn, the administrator of the Gambiers, a gentleman born and educated in the Island of Mauritius, who is also in medical charge of the islands under his administrative control, mentioned to me that during the past two years many of the Pitcairn women and girls had visited Mangareva, where venereal diseases are prevalent, and that, in consequence, he feared that some of them had contracted those complaints and had introduced them into their island. Dr. Cassian further expressed his interest in the Pitcairn Island community and generously proffered his medical services without remuneration, provided that those afflicted would go up to him for treatment. Accordingly, having ascertained after my arrival at Pitcairn that a few such cases were existent on the island, I made known Dr. Cassian's kindly proposal and invited the sufferers to accompany me back to Mangareva. None, however, responded to my appeal and I can only surmise that the persons in question have preferred to go up in the cutter. I also found at Pitcairn Island consumption, lupus, glandular swellings, asthma, and various forms of skin disease. These cases will likewise be taken in hand by Dr. Cassian under the conditions mentioned and it is to be hoped that the islanders will appreciate and will not fail to take advantage of that gentleman's benevolent solicitude for their welfare. I discovered no deformities among the people, but the front teeth of most of them are bad, the only visible result of their intermarriage with each other.

Some years ago the Pitcairn Island community embraced the faith of the Seventh Day Adventists, a religious sect having its origin and headquarters in the United States. On their sabbath day, in the observance of which they are scrupulous, the Pitcairn islanders, dressed in their best and looking clean and wholesome, make a favourable impression. They are exemplary in their attendance at week-day prayer meetings and Church gatherings, but, nevertheless, vulgar stories and exclamations and obscene songs are not unknown to them, and it is an alleged fact that on suitable occasions women will accompany the men on board passing ships ostensibly to sell curios, but in reality for immoral purposes. The Pitcairn people contribute 10 per cent. of their produce and of any moneys they may receive as a tithe to the Church, and they pay subscriptions to the Sabbath school and other religious funds."

A REPUDIATION.

To the Editors of THE LANCET.

SIRS,—In the *London Magazine* for March is an eight-page advertisement of the O'Connor Extension Company, entitled "Life's Handicap," by a Fellow of the Royal College of Surgeons. In the text my name is prominently displayed. Will you permit me to state that I am not the author of the article and also that I have a letter from the managing director undertaking that my name shall not be used in such a manner again. Thanking you in anticipation,

I am, Sirs, yours faithfully,

Bedford-square, W.C. CHISHOLM WILLIAMS, F.R.C.S. Edin.

MISCELLANEA.

WE are often asked by our readers for advice on the merits of certain articles and firms, and the task of giving such advice is obviously an invidious one. It is for this reason that we mention in brief some catalogues which have recently reached us and appliances to which our attention has been directed, leaving it to the individual to select from them as he may require.

Messrs. Brady and Martin, Limited, Newcastle-on-Tyne, issue a price list which contains, in addition to a useful drug catalogue, illustrations and prices of microscopes, electrical appliances and apparatus, surgical instruments, hospital furniture, and modern appliances required in the practice of medicine and surgery. It consists of 207 pages and will be found to be a convenient work of reference for many members of the medical profession.

A catalogue issued by Messrs. C. A. Hoefftcke, Limited, Woodstock-street, London, W., contains illustrations and descriptions of a large number of appliances used in orthopædic practice. It is not intended to be a complete list but many appliances are described for use in fractures, hip disease, diseases of the knee, and paralysis, scoliosis, kyphosis, and spondylitis. A section is also devoted to apparatus for active and passive movement for working stiffened joints. Some special surgical instruments are also described.

Messrs. W. Martindale, New Cavendish-street, London, W., publish a complete catalogue of their drugs and a price list which includes in addition to surgical appliances reagents and stains for microscopic work, chemical and bacteriological apparatus, and photographic chemicals. It consists of 216 pages.

The catalogue of Messrs. Maw, Son, and Sons, Aldersgate-street, London, E.C., containing 507 pages, is divided into nearly 60 sections and embraces almost everything that a medical man may require in his profession. The index occupies 36 pages and nearly every article catalogued is illustrated. To enumerate even a small proportion of the articles sold by this firm would be impossible in the space at our disposal and it must suffice to say that the firm is prepared to equip in instruments and appliances the smallest surgery or the largest hospital. The section on "Sterilisation of Urethral Instruments" contains illustrations of several apparatus of useful and novel design.

Messrs. Heal and Son, Tottenham-court-road, London, W., publish an illustrated catalogue of furniture—beds, tables, lockers, and so forth—for use in hospitals and private sick rooms. A bed for epileptic patients which this firm has supplied to several lunatic asylums is a useful one and the same may be said of the "labour bedstead" which has been supplied to Queen Charlotte's Hospital. The head- and foot-rails are made exceptionally strong and are removeable, while there is a loose wooden bottom which can be used as a stretcher.

Messrs. Maple and Co., Tottenham-court-road, London, W., call our attention to their completely equipped nurseries and exhibition of nursery furniture now on view at their showrooms. The wall's of the nurseries are decorated in bold and simple designs, illustrating in many cases well-known nursery rhymes, while the furniture, which in some cases has moral maxims painted upon it, is exactly suited to the heights of the children for whom it is designed. All corners are rounded off as a precaution against children injuring themselves. The walls are washable and the top panels of the room doors open inwards for the purpose of giving free ventilation, the air passing above the heads of the children to the windows. From a hygienic no less than from an educational point of view this exhibit is much to be commended.

THE "S" WRAP UNDERGARMENT.

WE have received from Messrs. John Smedley, Limited, of Lea Mills, Matlock, a specimen of underclothing designed especially for ladies' wear. The material is all wool, is said to be unshrinkable, and is known as the Jay finish. By Jay finish is meant a finishing process which prevents the fabric from "felting" or casting fluff. This quality of woollen garments is a frequent source of annoyance. The special feature of the garment is, however, the "S" flap at the back which gives complete protection to those parts of the body which are not protected by the ordinary combinations. Moreover, the extra length in the back given by the gusset prevents the garment from dragging when the wearer assumes the sitting posture. Buttons are not necessary. The same manufacturers make a "star" seating in the pants and the drawers worn by men. There are thus no seams at the fork to split or to give rise to chafing. Like the "S" wrap undergarment the patent star seat permits free and comfortable movement.

AN EMERGENCY LIGHT.

Apropos of a paragraph which appeared in THE LANCET of April 1st, p. 897, on the occasional failure of the electric light-supply, our attention has been drawn to an apparatus designed by Mr. H. McGillivray of Matfen-place, Wingrove, Newcastle-on-Tyne, which automatically switches on emergency lights in the case of electric cars when the line current fails or the trolley slips the wire. The apparatus consists of a battery and automatic switch. The battery (8-cell) is placed underneath the car seat and an electro-magnet or solenoid, which controls a cut-out in the auxiliary lamp circuit, is fixed at the end of the car. The battery is charged automatically from the ordinary car-lighting circuit in series with the lamps and as occasion demands supplies in its turn current to the lamps in the car. It is stated that this apparatus is giving very satisfactory results on the electric cars in Newcastle and we understand that the system has been tested on the "tube" with equal success. There is always some uncertainty about the current for domestic supply, public buildings, &c., being maintained without a break, and the failure of the light is a source of great inconvenience and may easily give rise to alarming consequences. This system of emergency lighting is calculated therefore to remove a serious disadvantage of electric lighting and it may easily be applied, it is stated, to the installation of the house, the theatre, the shop, and so on.

MANNERS IN THE LONDON STREETS.

To the Editors of THE LANCET.

SIRS,—Do you not think that much of the confusion on the sidewalks of the streets has arisen from the disappearance of the old notices from the lamp-posts "Foot passengers keep to the right"? Those of us who remember the passengers of, say, 30 years ago will recall how, as a matter of course, each took his proper side on meeting. Now that so many ride bicycles they have learned to keep to the left on the roadway and naturally do the same on the pavement. Others trained in the old fashion keep to the right and there is constant confusion.

The custom of driving and riding on the left side of the road is said to have arisen at the time when everyone who approached was a possible enemy and hence it was advisable to have the sword hand towards him. In the same way one kept to the right on the sidewalk so as to have the sword-hand free in case of being jostled or incommoded by one coming in the opposite direction.

On the continent, where everyone rides and drives on the right of the road, it is proper that he should keep to the right when on the pavement. In the British Isles, where one must conform to the usage of keeping to the left on the roadway, it would seem that the time has come to adopt the same practice on foot. I have often wished that notices could be posted everywhere "Keep to the left."

I am, Sirs, yours faithfully,

April 18th, 1905. OBSERVER.

MINERS AND TYPHOID FEVER.

IT appears that at Ashington, the largest coal-mining district in Northumberland, miners and their families are much more subject to typhoid fever than are the workers above ground and their families. It is said that there are twice as many working above ground as below and yet the proportion attacked is nine miners or members of their families to every one person employed above ground. Taking the underground workers alone and comparing them with those working above ground, without reckoning their families, the proportion is 17 to one in favour of the surface men and with the wives and children it is six and seven to one respectively. The men in the mines are said to drink the same water as do those above ground. There is evidently room for sanitation.

A NEW VENTILATING SASH FASTENER.

Messrs. W. and T. Avery, Limited, of the Soho Foundry in Birmingham, have sent us a specimen of the "Lorie" No. 1 reversible ventilating sash fastener, by the use of which ordinary windows may be left open for some distance at either the top or the bottom without risk of intruders entering. A bolt, which is in reality a quick-acting screw working in an adjustable split nut, is fixed on the top bar or rail of the bottom sash close to one side of the window-frame and the end of this bolt when forced outwards presses against a metal plate fastened to the vertical side of the upper sash. If the window is partly opened before the bolt is forced out the two sashes will be securely fixed in this position until the bolt is slackened by some one inside the house. The disagreeable rattling of a window can also be effectually prevented in the same way.

Ethics has asked us a puzzling question. In our view B can remain in attendance upon C without a breach of ethics, but the reverse has been maintained. We propose to return to the subject.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, April 19th, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
April 13	29·81	S.W.	...	105	62	47	51	55	Fine
" 14	29·70	S.E.	0·03	102	62	53	53	54	Raining
" 15	29·74	W.	0·01	112	61	48	48	51	Cloudy
" 16	29·71	N.E.	...	78	53	47	45	47	Cloudy
" 17	29·89	E.	0·07	90	51	43	43	47	Cloudy
" 18	29·94	N.E.	...	89	48	40	40	45	Fine
" 19	29·88	N.E.	0·01	61	43	37	40	42	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.).

WEDNESDAY (26th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.) Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.).

THURSDAY (27th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.).

FRIDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Royal Ear (10 A.M.).

SATURDAY (29th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

WEDNESDAY (26th).—HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8.30 P.M. Discussion upon Influenza (second evening). Dr. W. Bulloch (Bacteriology), Dr. T. G. Lyon (Clinico-Pathology), the President (Dr. F. J. Smith) (Treatment). The General Discussion will be open to all members of the medical profession.

FRIDAY (28th).—CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Exhibition of Clinical Cases followed by discussion. Patients will be in attendance from 8 to 9 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

TUESDAY (25th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—11 A.M. Dr. Candler: Bacteriology.

WEDNESDAY (26th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M. Dr. Candler: Blood and Urine Examination. 3 P.M. Mr. Bidwell: Intestinal Anastomoses.

THURSDAY (27th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—11 A.M. Dr. Candler: Bacteriology. 3.15 P.M. Mr. Bidwell: Intestinal Anastomoses. 4.30 P.M. Dr. S. Taylor: Surface Anatomy.

FRIDAY (28th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.). 2 P.M. Blood and Urine Examination. 5 P.M. Mr. Bidwell: Intestinal Anastomoses.

SATURDAY (29th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10.30 A.M. Dr. Candler: Bacteriology.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTICE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

During the week marked copies of the following newspapers have been received:—*Irish Times, Reading Mercury, Literary Digest (New York), Scientific American, Mining Journal, Standard, Western Mail (Cardiff), Aberdeen Weekly Free Press, Freeman's Journal, Hertfordshire Mercury, Windsor and Eton Express, Guernsey Star, Pall Mall Gazette, Belfast Whig, Halifax Courier, Belfast News Letter, Liverpool Post and Mercury, Daily Chronicle, &c.*

Communications, Letters, &c., have been received from—

A.—Mr. F. L. Anderson, Lond.; Messrs. Allen and Hanburys, Lond.; Dr. J. F. St. J. Annesley, Fermanagh; Messrs. W. and T. Avery, Birmingham; Automatic Disinfectant Delivery Machine Co., Lond., Managing Director of.

B.—Dr. W. C. Bosanquet, Lond.; Banca Commerciale Italiana, Bari; Messrs. Bemrose and Sons, Lond.; Dr. Francis T. Bond, Gloucester; Dr. Baumstark, Homburg; Mr. Frank P. Barker, Lond.; Dr. C. A. Ball, Dublin; Mr. C. Birchall, Liverpool; *Birmingham Daily Post*; Mr. J. W. Benson, Lond.; Mr. J. N. Bencini, Florence; Mr. T. W. Barber, Lond.; Mr. W. H. Brown, Leeds; Mr. A. S. Barling, Lancaster,

C.—Mr. H. A. Collins, Croydon; Messrs. Cassell and Co., Lond.; Mr. L. Carré, Lond.; Messrs. A. H. Cox and Co., Brighton; Mr. G. Candler, Black Torrington; Cheltenham Corporation, Clerk of; Messrs. J. W. Cooke and Co., Lond.; Dr. A. Clerici, Milan; Mr. C. P. Child, Southsea; Dr. Harry Campbell, Lond.; Dr. Sydney W. Curl, Colchester; Messrs. Cole and Co., Lond.; Messrs. T. Christy and Co., Lond.

D.—Dr. J. Dulberg, Manchester; Dr. H. Danvers, Bordighera; *Daily Mirror*, Lond., Editor of; Devonshire Hospital, Buxton, Secretary of.

E.—Dr. W. Edgecombe, Harrogate; Dr. J. B. Emmerson, Biggleswade; "Ethics"; E. C.

F.—Mr. G. Forden, Berkeley.

G.—Dr. A. Knyvett Gordon, Manchester; Dr. John Grimshaw, Birkenhead; Mrs. Goggs, Penwortham; Govan, Medical Officer of Health of; Mr. N. Ginn, Worcester; Messrs. R. W. Greeff, and Co., Lond.; Dr. Laing Gordon, Florence.

H.—Mr. W. B. Harley, Hove; Dr. H. Huybertsz, Kandy; Professor W. S. Handley, Llanberis; Mr. F. Hinchliffe, Winchester, Massachusetts; Messrs. Haasenstein and Vogler, Geneva; Dr. W. J. Howarth, Derby.

I.—Dr. E. C. B. Ibotson, Dover.

J.—Miss G. M. Johnson, Moseley; Mr. R. F. Jones, Lond.; Mr. C. Jones, Guernsey.

K.—Dr. Charles Kerr, Dundee; Kent and Canterbury Hospital, Secretary of; Messrs. R. A. Knight and Co., Lond.

L.—Mr. B. Leppington, Oxford; Lawrence Patent Water Softener and Steriliser Co., Lond.; Messrs. Larcom and Veysey, Portsea; Marquise de Lisle, Rome; Mr. J. B. Lamb, St. Albans; Mr. J. G. Leigh, Lond.; Messrs. Lamont, Corliss, and Co., Lond.

M.—Miss C. Morrison, Glasgow; *Mining Journal* (*The*), Lond.; Captain D. McCay, I.M.S., Calcutta; Mr. R. Mosse, Berlin; Male Nurses' Association, Lond.; Messrs. C. Midley, Manchester; Dr. J. L. Morton, Lond.; Mr. H. Greville Montgomery, Lond.; Messrs. C. Mitchell and Co., Lond.; Manchester Royal Infirmary, Secretary of; Medical Graduates' College, Lond.

N.—Messrs. Norman and Stacey, Lond.; Newspaper Society, President of the, and Mrs. Walter Scott; Newport and Monmouthshire Hospital, Secretary of; Newcastle-on-Tyne Dispensary, Secretary of; Mr. J. C. Needes, Lond.; Mr. H. Needes, Lond.

P.—Mr. H. J. Paterson, Lond.; Dr. W. A. Parker, Gartcosh; Mr. Y. J. Pentland, Edinburgh; Mr. J. Taylor Park, Huddersfield; Mr. C. Ernest Pronger, Harrogate; Dr. J. Priestley, Lond.

R.—Dr. A. R. Reynolds, Chicago; Rickmansworth, Medical Officer of Health of; Royal Statistical Society, Lond.; Mrs. J. T. Richardson, Southwell; Dr. J. Rivière, Paris; Royal Sanitary Institute, Lond., Secretary of; Mr. A. W. Mayo Robson, Lond.; Miss Vaughan Rees, Brimfield; Dr. J. W. Russell, Birmingham; Mr. J. S. Richardson, Lond.; Mr. John R. Rolston, Plymouth; Royal Mail Steam Packet Co., Lond.

S.—Dr. R. C. Stevens, Lancaster; Society for Relief of Widows and Orphans of Medical Men, Lond., Secretary of; Sandal Magna, Urban District of, Medical Officer of Health of; Mr. F. A. Upsher Smith, Chesterfield; Dr. D. Lloyd Smith, Frodsham; Dr. R. A. Stoney, Dublin; Messrs. Sharland and Co., Lond.; Dr. Sondermann, Dieringhausen; Mr. D. J. Sutherland, Lond.; *Specialist Press*, Lond.; Dr. H. Savory, Bedford; Dr. R. S. Stewart, Bridgend; Dr. Arthur Sellers, Prestwich; Sheffield Royal Hospital, Secretary of; Scholastic, Clerical, &c., Association, Lond.

T.—Dr. W. Bezly Thorne, Lond.; Mr. W. Todd, Edinburgh; Mr. A. Betts Taplin, Liverpool.

U.—Université Hall, Paris, Secretary of; University of Edinburgh, Dean of the Faculty of Medicine of.

W.—Mr. C. Gordon Watson, Lond.; Dr W. B. Winton, Wimbledon; Mr. R. H. Worth, Lond.; Mr. R. Williams, Lond.; Messrs. John Wiley and Sons, New York; West Bromwich District Hospital, Secretary of; Mr. R. Williams, Lond.; West London Medico-Chirurgical Society, Hon. Secretary of; Mr. Charles Wray, Lond.; Mr. P. W. Walker, Birmingham; Messrs. H. Wilson and Son, Lond.

Z.—Mr. E. Zanotti, Constantinople.

Letters, each with enclosure, are also acknowledged from—

A.—Dr. J. Adam, West Malling; Mr. J. C. Ady, Boston, U.S.A.; A. H. S.; Dr. J. Ambrose, Devizes; A. D.

B.—Birkenhead Union, Clerk of.

C.—Dr. P. J. Cammidge, Lond.; Mr. J. G. Chapman, Birkenhead; Dr. H. G. Cooper, Altrincham; Mr. E. Collins, Sawbridgeworth; Mr. A. N. Cruikshank, Lond.; Chesterfield Hospital, Secretary of; Mr. T. Culleton, Lond.; Mr. C. T. Cheatle, Burford; Mr. J. J. Crowley, Cork; Messrs. J. Clark and Sons, Richmond; Mr. J. M. Chambers, Lydbrook; Mr. M. Cavanagh, Lond.

D.—*Detroit Medical Journal*, Detroit, U.S.A.; Derbyshire Royal Infirmary, Secretary of.

E.—Mrs. Evans, Pownhope; Mr. C. Evans, Lond.; Essex and Colchester Hospital, Secretary of.

F.—Dr. G. C. H. Fulton, Eaton; Messrs. Feuerheerd Bros. and Co., Lond.

G.—Dr. R. A. Glegg, Edinburgh; Messrs. W. Green and Sons, Edinburgh; German Hospital, Lond., Secretary of; G. D. P.; Dr. R. Griffith, Netherton.

H.—Mr. C. Hanbury, Little Berkhamsted; Mr. G. Haslop, Oldham; H. B. E.

I.—International Plasmon, Lond.

J.—Dr. R. C. Joyce, Porth; J. H. S.; Mr. H. H. Johnson, Netley.

K.—Dr. R. G. Kirton, Cairo; Miss King Turner, Newbury.

L.—Mr. H. H. Lacy, Warwick.

M.—Dr. H. S. Martyn, Cambuslang; Mr. J. W. Miller, Douglas, Isle of Man; Margaret-street Hospital for Consumption, Lond., Secretary of; M. S. M. D.

O.—O'Connor Extension Co., Lond.; Dr. S. J. Ormond, Dartford.

P.—Rev. C. R. Powys, Rofford; Mr. F. H. Preston, Plumstead; Miss Potter, Wolverhampton; Messrs. Parke, Davis, and Co., Lond.; Mr. D. Piperno, Lond.

R.—Mr. T. J. Rees, Victoria, Mon.; Richmond Royal Hospital, Secretary of; Messrs. Reynolds and Branson, Leeds; Mr. R. Redpath, Newcastle-on-Tyne; Reg, Birmingham.

S.—Mr. D. Sen, Malda, India; Dr. S. Stockman, Hillsborough; Dr. J. E. P. Shera, Wells; Mr. T. A. Southern, Cardiff.

T.—Mr. J. Taylor, Ffynnongroew; Miss J. G. Todd, Glasgow; Mr. S. Thrower, Lond.; T. B. C.; T. M.

V.—Mr. C. Visger, Clevedon.

W.—Mr. A. O. Way, Romsey; Dr. A. E. Wright, Lond.; W. J. L.; W. E. A.; W. E. S.

EVERY FRIDAY.

THE LANCET.

PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements and Situations Vacant	Ditto	0 4 6
	Every additional Line	0 0 6

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

An original and novel feature of "THE LANCET General Advertiser is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 31 Rue Bapts, Asnières, Paris.